

Service Hints

Plasma Television



VIERA

**<500/50 Series> TH-50/42/37PV500E
TH-50/42/37PV500B
TH-42/37PA50E
TH-42/37PE50B**

Trouble Shooting for Power Supply - Ver 2.0 -

This service hint is published for technicians and engineers for repair.
And it gives you the information how to judge the defective board of PDP.

Please file and use this Service Hints together with the main service manual and other publications related to models.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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Trouble Shooting

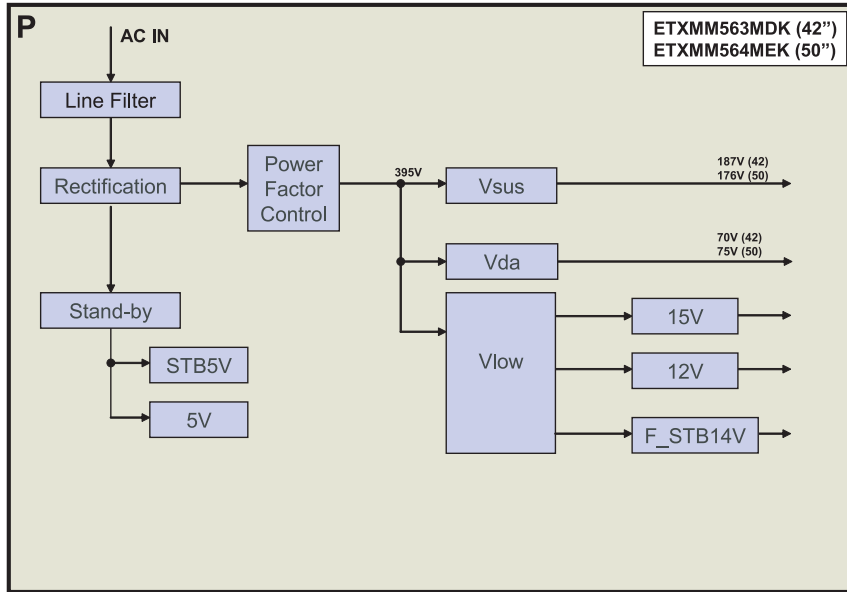
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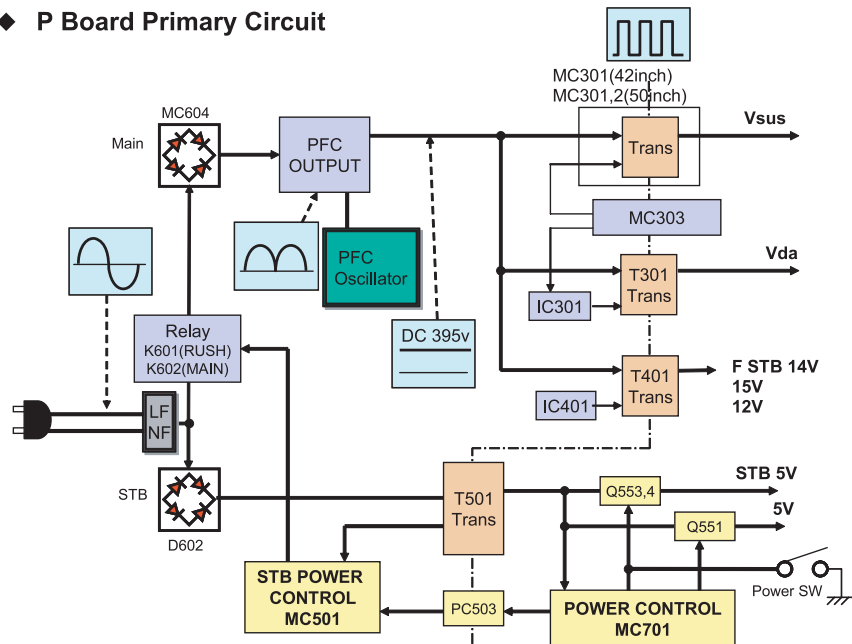
Power Supply

<TH-50/42PV500E>
<TH-50/42PV500B>

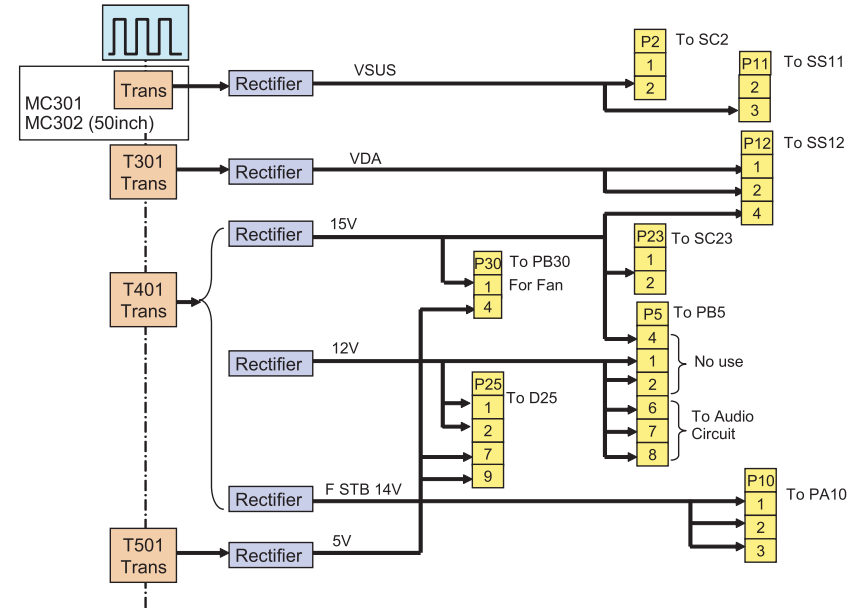
◆ P Board Power Supply Outline



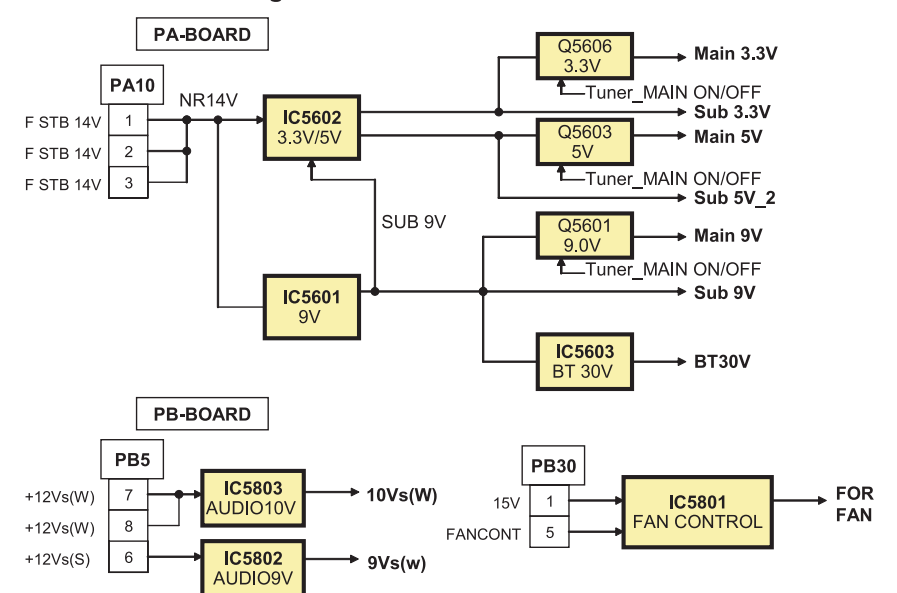
◆ P Board Primary Circuit



◆ P Board Secondary Circuit



◆ PA&PB Board Regulator Circuit



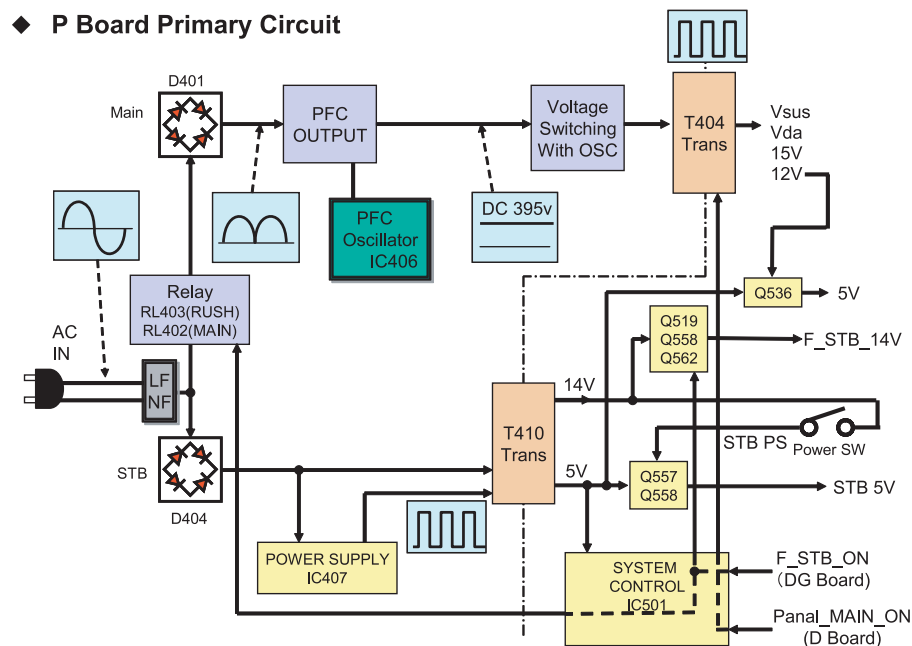
Power Supply <TH-37/42PA50E> <TH-37PV500E>
<TH-37/42PE50B> <TH-37PV500B>

Power Supply <TH-37/42PA50E> <TH-37PV500E>
<TH-37/42PE50B> <TH-37PV500B>

P Board Power Supply Outline

```
graph TD; AC_IN[AC IN] --> Line_Filter[Line Filter]; Line_Filter --> Rectification[Rectification]; Rectification --> Standby[Stand-by]; Rectification --> PFC[Power Factor Control]; Standby --> STB5V[STB5V]; Standby --> 5V[5V]; Standby --> F_STB14V[F_STB14V]; PFC --> Vsus[Vsus]; PFC --> Vda[Vda]; PFC --> Vlow[Vlow]; Vlow --> 15V[15V]; Vlow --> 12V[12V]; IC501[IC501 SYSTEM CONTROL];
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The diagram illustrates the power supply architecture of the P Board. It starts with AC IN, which passes through a Line Filter and a Rectification stage. The Rectification stage is connected to a Power Factor Control block. The Stand-by stage is connected to STB5V, 5V, and F_STB14V outputs. The Power Factor Control block is connected to Vsus, Vda, and Vlow outputs. The Vlow output is further connected to 15V and 12V outputs. The IC501 SYSTEM CONTROL block is shown at the bottom.



◆ P Board Secondary Circuit

The diagram illustrates the power distribution from two transformers, Trans T404 and Trans T410, through various rectifiers to different components on the P Board. The components and their connections are as follows:

- Trans T404** (Primary):
 - Rectifier VSUS**: Output to P2 (To SC2).
 - Rectifier VDA**: Output to P11 (To SS11) and P12 (To SS12).
 - Rectifier 15V**: Output to P30 (To PB30 For Fan) and P23 (To SC23).
 - Rectifier 12V**: Output to P5 (To PB5) and P25 (To D25).
- Trans T410** (Primary):
 - Rectifier F STB 14V**: Output to P10 (To PA10).
 - Rectifier 5V**: Output to P25 (To D25) and P23 (To SC23).

The components are connected to the following pins:

- P2**: To SC2
- P11**: To SS11
- P12**: To SS12
- P30**: To PB30 For Fan
- P23**: To SC23
- P5**: To PB5
- P25**: To D25
- P23/P5**: To PB5
- P25**: To D25
- P23/P5**: To Audio Circuit
- P10**: To PA10
- P25**: To D25

◆ PA&PB Board Regulator Circuit

PA-BOARD

PA10

NR14V

F STB 14V

1

2

3

IC5602
3.3V/5V

IC5601
9V

SUB 9V

Q5606
3.3V

→ Main 3.3V

Tuner_MAIN ON/OFF

Q5603
5V

→ Sub 3.3V

→ Main 5V

Tuner_MAIN ON/OFF

→ Sub 5V_2

Q5601
9.0V

→ Main 9V

Tuner_MAIN ON/OFF

→ Sub 9V

IC5603
BT 30V

→ BT30V

PB-BOARD

PB5

+12Vs(W)

7

+12Vs(W)

8

+12Vs(S)

6

IC5803
AUDIO10V

→ 10Vs(W)

IC5802
AUDIO9V

→ 9Vs(W)

37PV500 ONLY

PB30

15V

1

5

FANCONT

IC5801
FAN CONTROL

→ FOR FAN

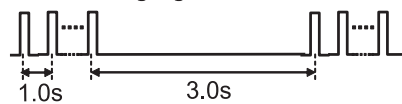
Protection

Protection Circuit Operation

◆ Power LED Blink Mode

LED Blinking times		Trouble Mode	Defective Board (Example)		
1st (*1)	improved		37/42PA50E,PE50B	37/42PV500E,B	50PV500E,B
1	1	IIC communication NG	Unknown (D)		
	2	12V down SOS	P, D		
	3	3.3V down SOS	D		
	4	Power SOS (V _{sus} , 5V down)	P		
	5	P5V SOS	D, P, C, SC, SS, Panel (IC)		
	6	SCAN Driver SOS(37",42") +SC Floating Volt. (50")	SC, SS, D, P (SC Energy recovery)	SC, SU, SD, SS, D, P (SC Energy recovery/ floating volt.)	
	7	SC Floating Volt.(37",42") DATA Driver SOS (50")	SC, SU, SD, D, P (SC floating volt.)	SS, D, C, P (SS Data Energy recovery)	
	8	SUS Driver SOS	SS, SC, D, P (SS Energy recovery)		
	9	Soft-Ver. Combination NG	D		
10	Tuner Power SOS	PA, P, H, DG, Z, TA, XV(*2)	PA, P, H, DG, GS, Z, TA, DV, XV(*2)		
11	Fan SOS	PB, FAN			
12	Sound SOS	PB, Z, H			

LED Blinking signal



Note

(*1)

2 ~ 9 times LED blinking become to 1 time in 1st design.
So, when 1 time LED Blinking is found, please check SOS signal that is input to IC9003, in order to know true LED blinking time. Check point is the connector's pin or IC9003's pin as shown in the following table.

When SOS signal is found, please refer to the flow chart of its trouble mode that the SOS signal indicates.

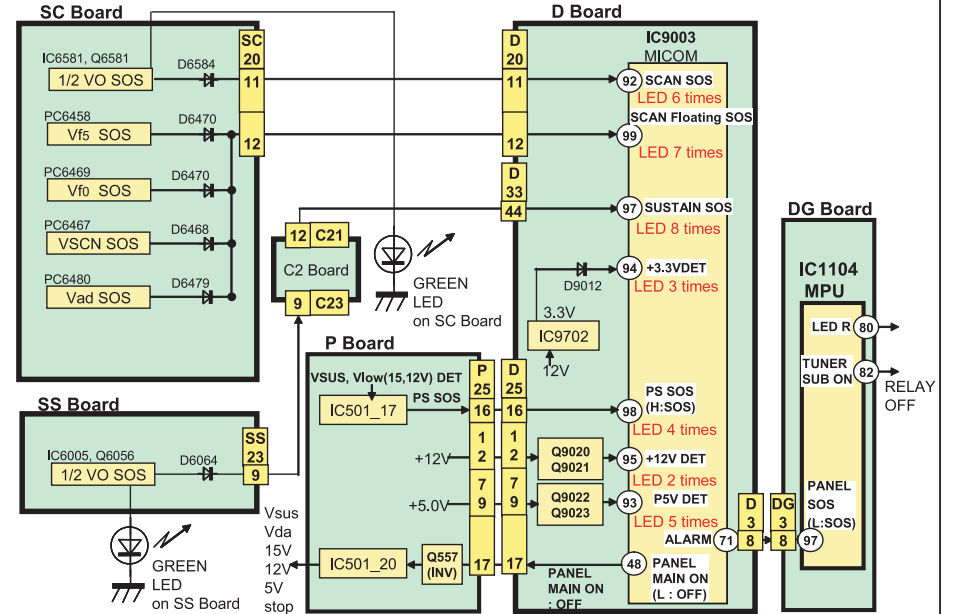
(*2)

XV board PE50B, PV500B only.

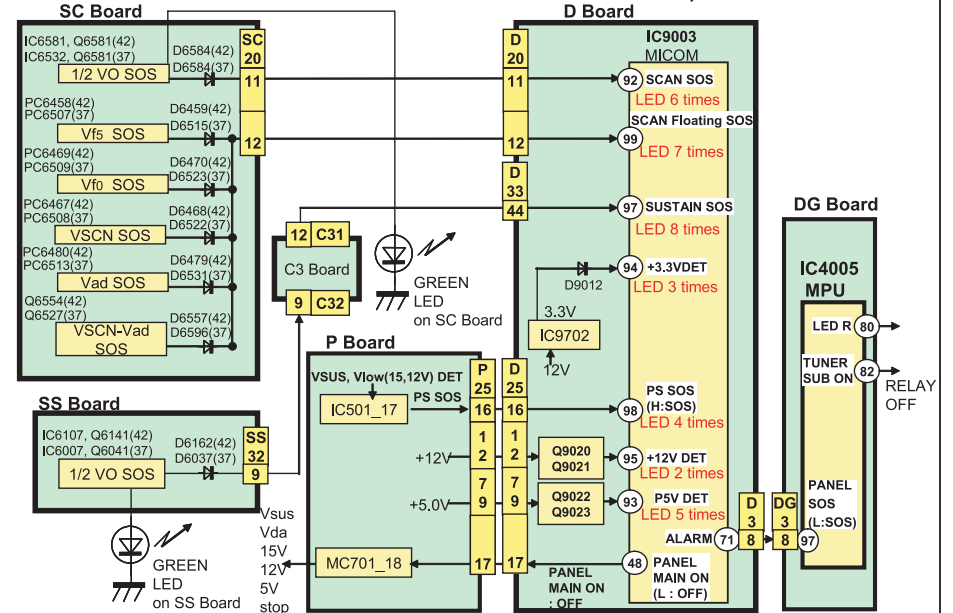
◆ Check point in the case of 1 time blink

LED Blinking		Trouble Mode	Check Point location		Check output
actual	true		connector No. / Pin No.	IC9003 (D board) input port No.	SOS signal
1	2	12V down SOS	---- (R9047 in D board)	IC9003_95	L : SOS
	3	3.3V down SOS	---- (R9007 in D board)	IC9003_94	L : SOS
	4	Power SOS	D25 or P25 / 16pin	IC9003_98	H : SOS
	5	P5V SOS	---- (R9048 in D board)	IC9003_93	L : SOS
	6	SCAN Driver SOS(37",42") +SC Floating Volt. (50")	D20 or SC20 / 11pin	IC9003_92	H : SOS
	7	SC Floating Volt.(37",42") DATA Driver SOS (50")	D20 or SC20 / 12pin (37"/42") SS44 or C44 / 19pin (50")	IC9003_99	H : SOS
	8	SUS Driver SOS	SS23 or C23 / 9 pin (37") SS32 or C32 / 9 pin (42") SS44 or C44 / 9 pin (50")	IC9003_97	H : SOS

◆ Panel SOS LED 1~8 times blink <TH-37/42PA50E, PE50B>



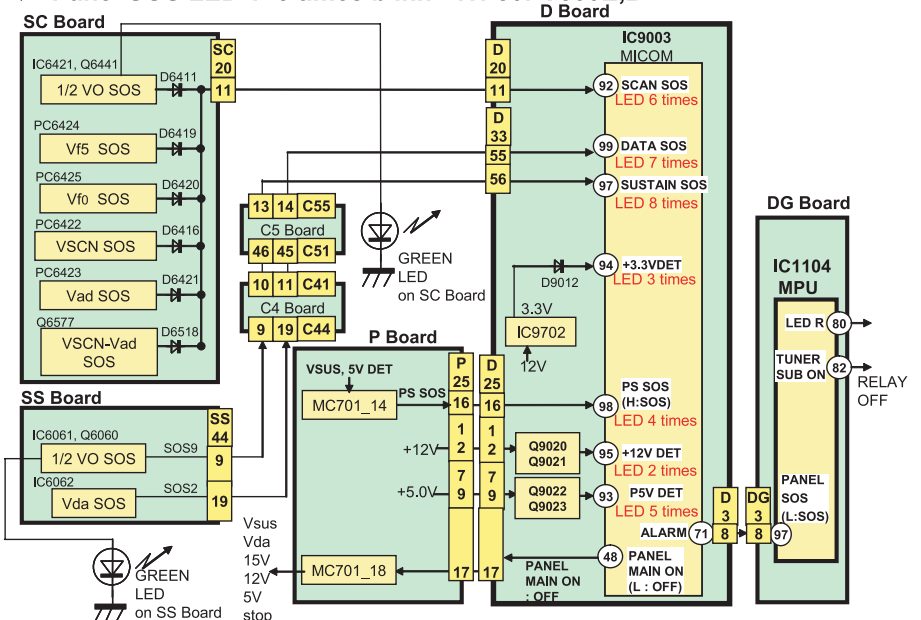
◆ Panel SOS LED 1~8 times blink <TH-37/42PV500E, B>



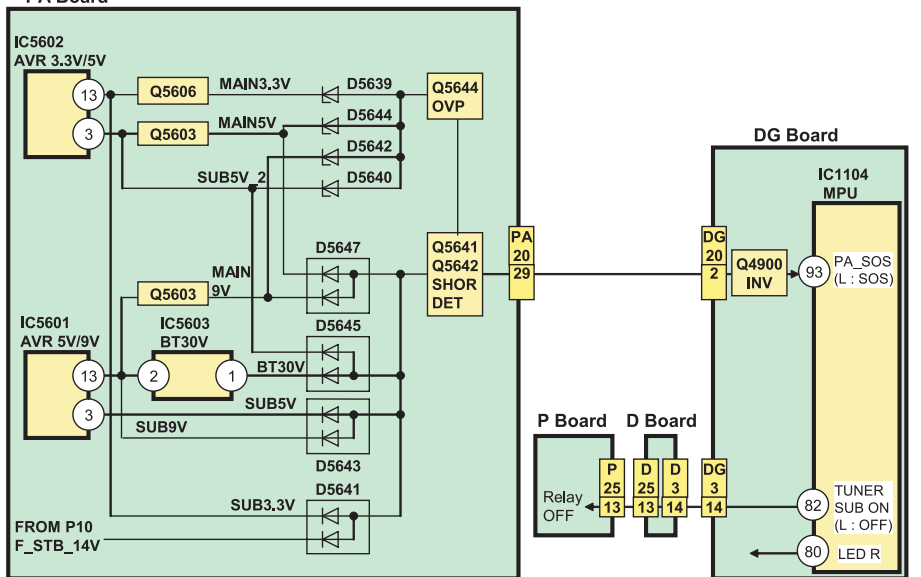
Protection	Protection Circuit Operation
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Protection	Protection Circuit Operation
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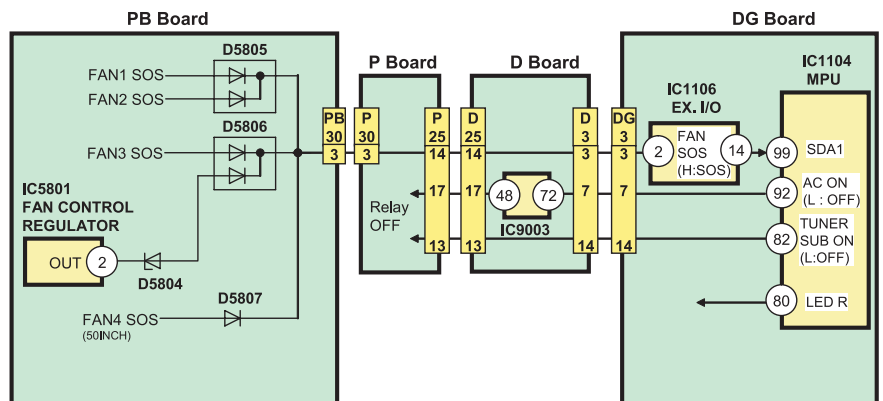
◆ Panel SOS LED 1~8 times blink <TH-50PV500E,B>



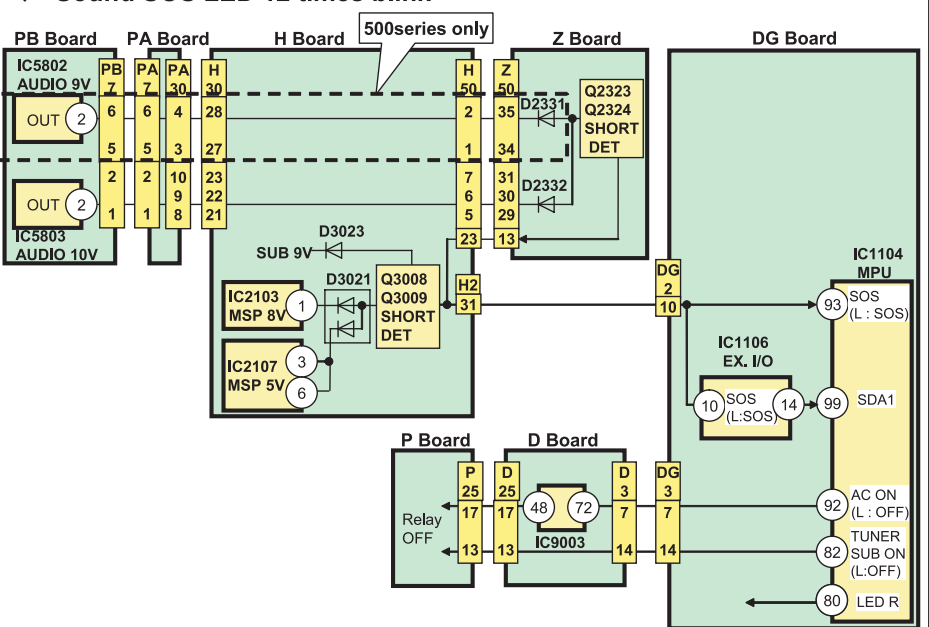
◆ Tuner SOS LED 10 times blink
PA Board



◆ **FAN SOS LED 11 times blink**



◆ Sound SOS LED 12 times blink



Introduction of Power Trouble Shooting

1. These are following 2 states of Power LED in Power Trouble

- A. No Lit (Relay doesn't work)
- B. Blinking several times

2. Basic Idea of how to find the defective block

- A. Check if the voltage comes up

Normally, when Power ON, shut down occurs immediately.
So, check is necessary before shutdown.

- B. Check if power comes up, when disconnecting the board which seems to be defective.

If power comes up (*) when disconnecting a board,
the board is defective.

(*) "Power comes up" means "no shutdown".

3. Adjustment after P.C.B. exchange

When exchange the following boards, voltage adjustment is necessary.
Please refer to Service Manual.

P.C.B	Voltage
P board	Vsus
SC board	Vad
SS board	Ve

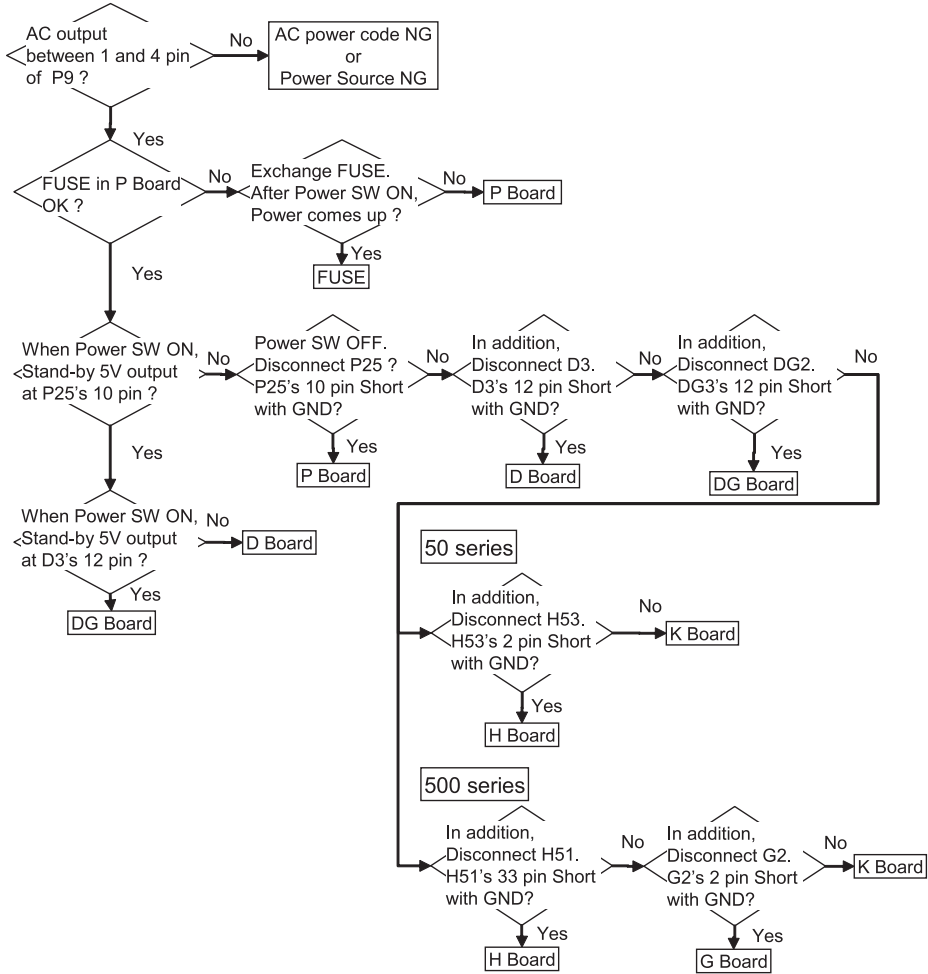
Trouble Shooting

Power LED No Lit Trouble

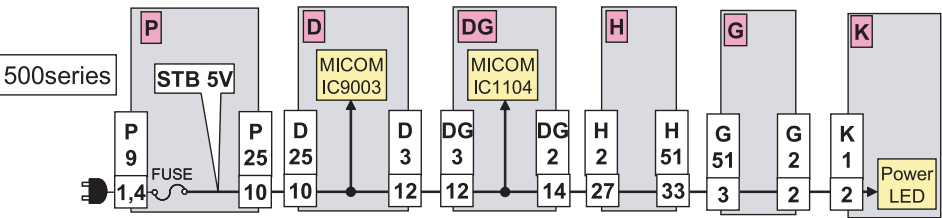
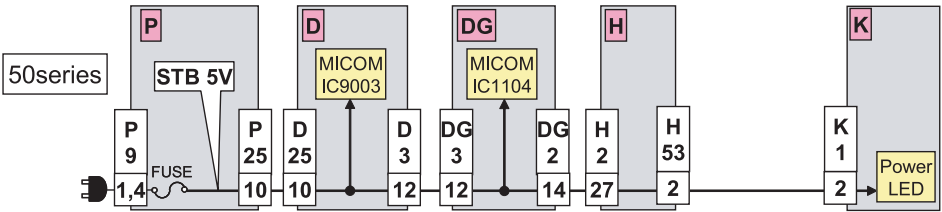
◆ Trouble status and Defective Block

Power LED Status (cause)	Defective Block
No Lit (STB 5V NG)	AC Power Code or P Board (or other Boards)

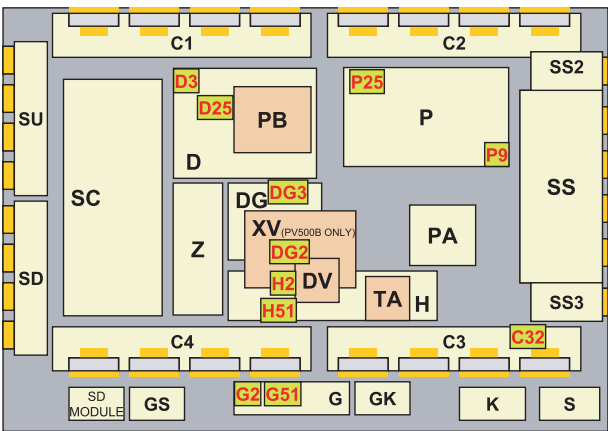
◆ How to find the defective board



◆ STB 5V Power Supply



◆ Check Point Location e.g. 42PV500E,B



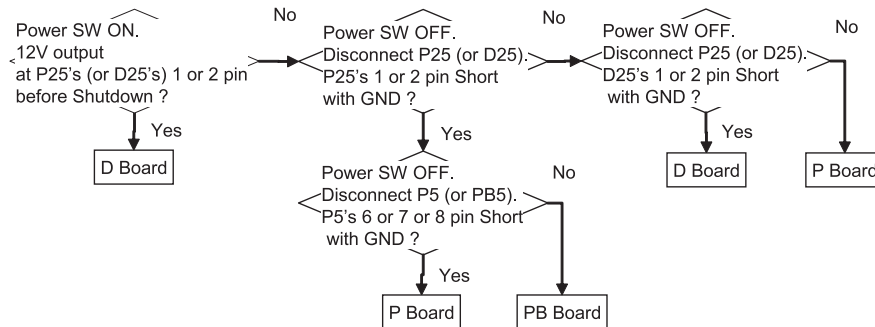
Trouble Shooting Power LED Blink Trouble

LED 2 times blink

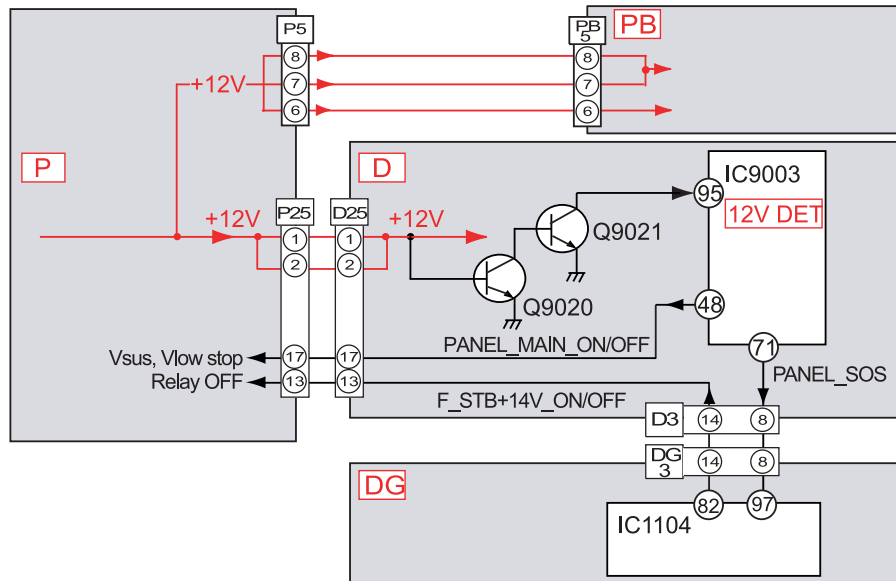
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
12V down SOS	P, D, PB Board (P > D, PB)

◆ How to find the defective board



◆ Power Supply and Protection Circuit



LED 3 times blink

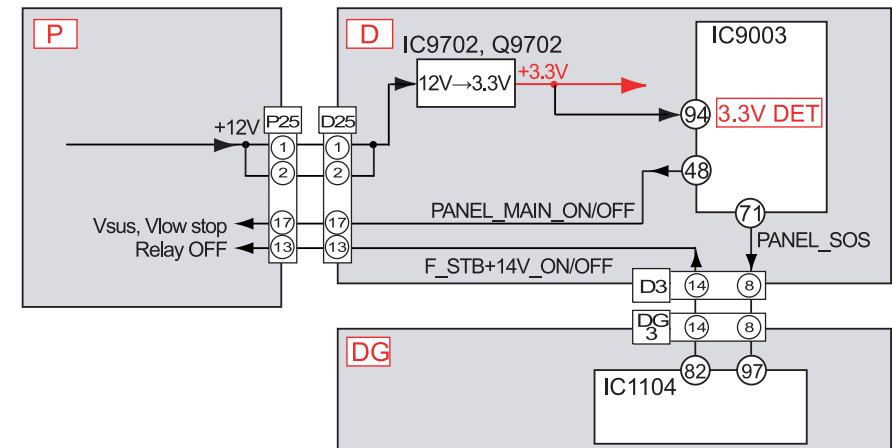
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board
3.3V down SOS	D Board

◆ How to find the defective board

The defective board is D board ONLY.

◆ Power Supply and Protection Circuit



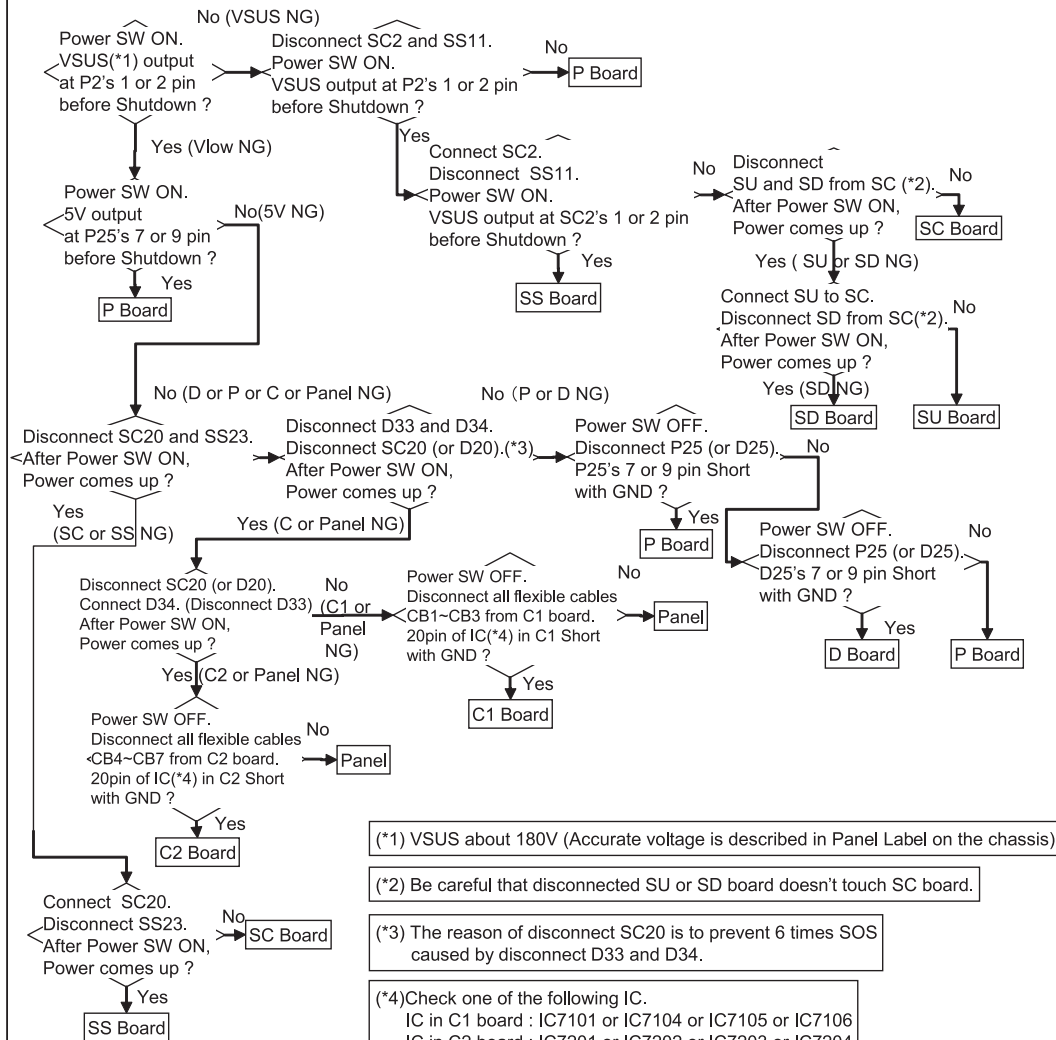
Trouble Shooting Power LED Blink Trouble

LED 4 times blink < 37", 42" SD (TH-37/42PA50E, PE50B) >

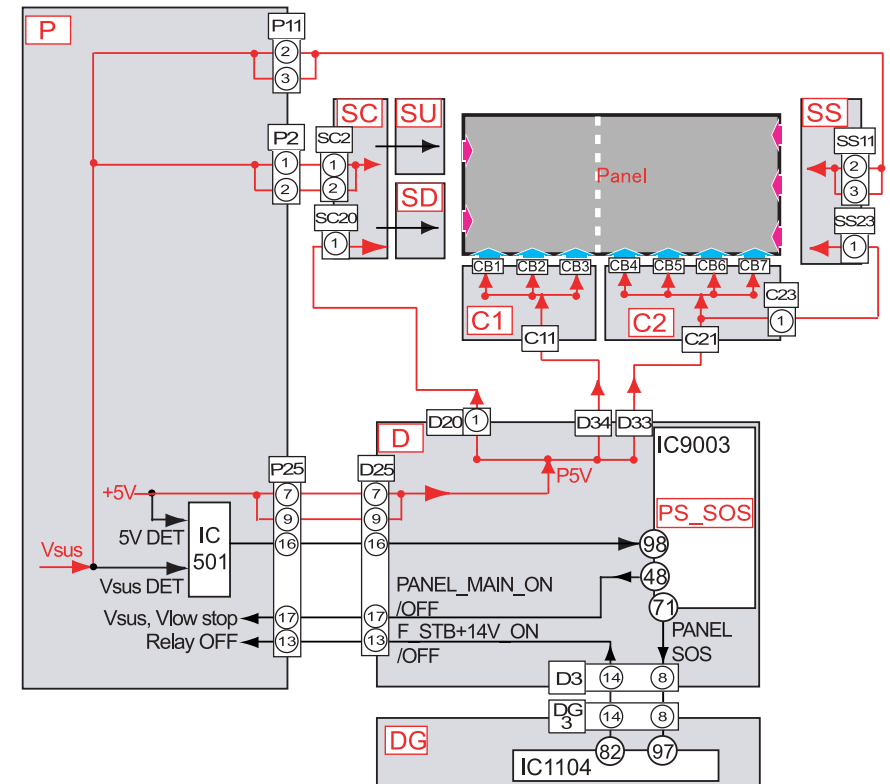
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
Power SOS = Vsus, 5V down	P, SC, SS, D, SC, SU Board (P > SC, SS, D, SU, SD)

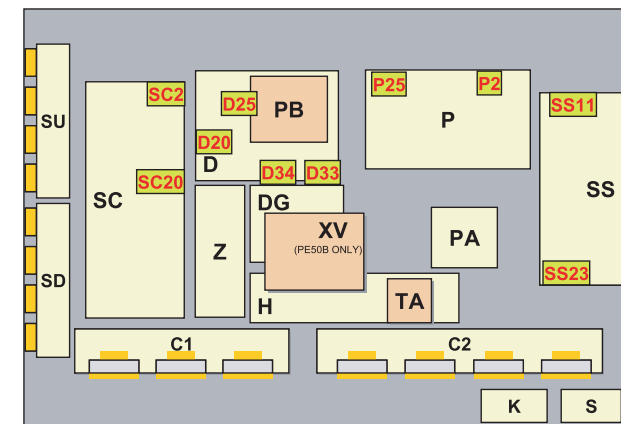
◆ How to find the defective board



◆ Power Supply and Protection Circuit



◆ Check Point Location



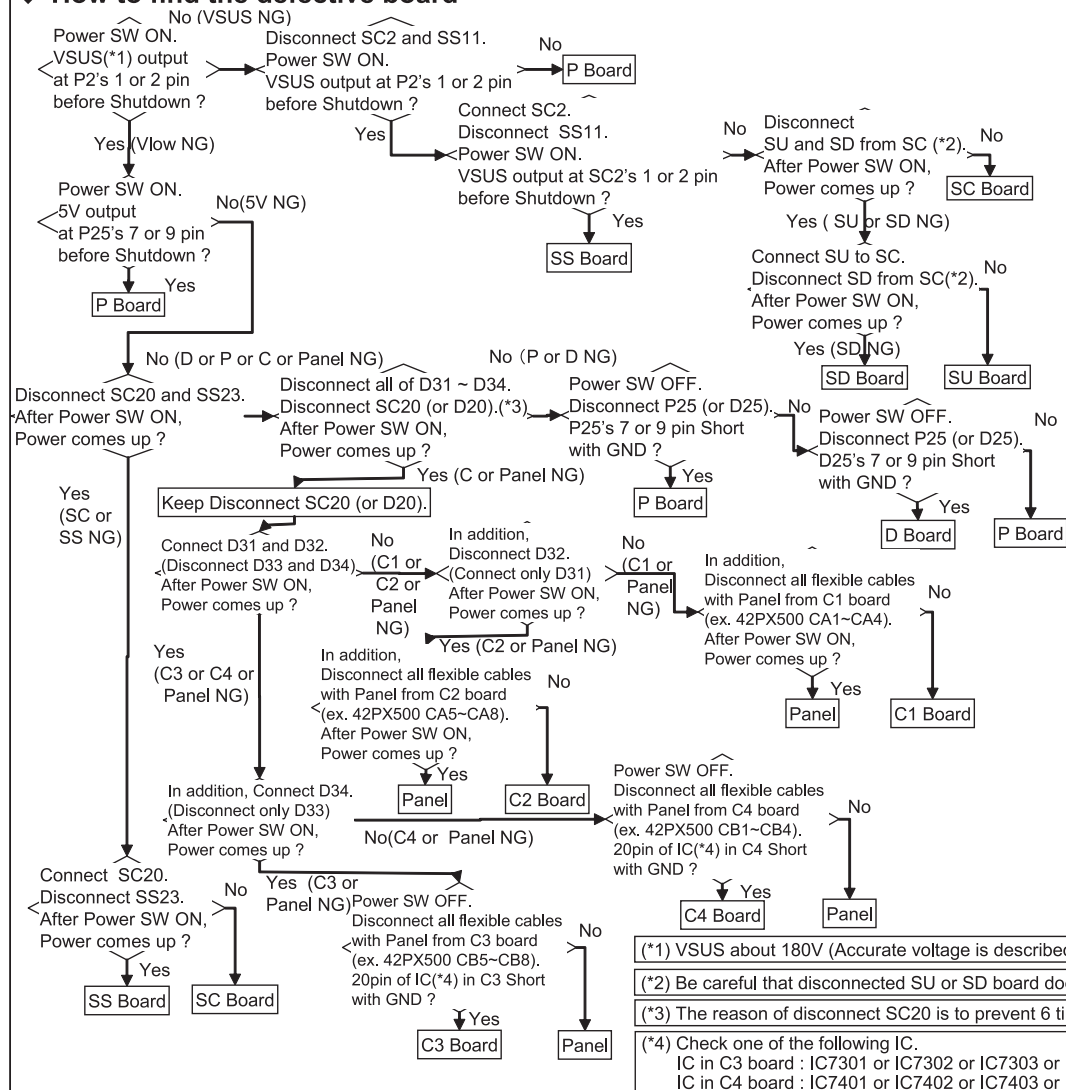
Trouble Shooting Power LED Blink Trouble

LED 4 times blink < 37", 42" HD (37/42PV500E,B)>

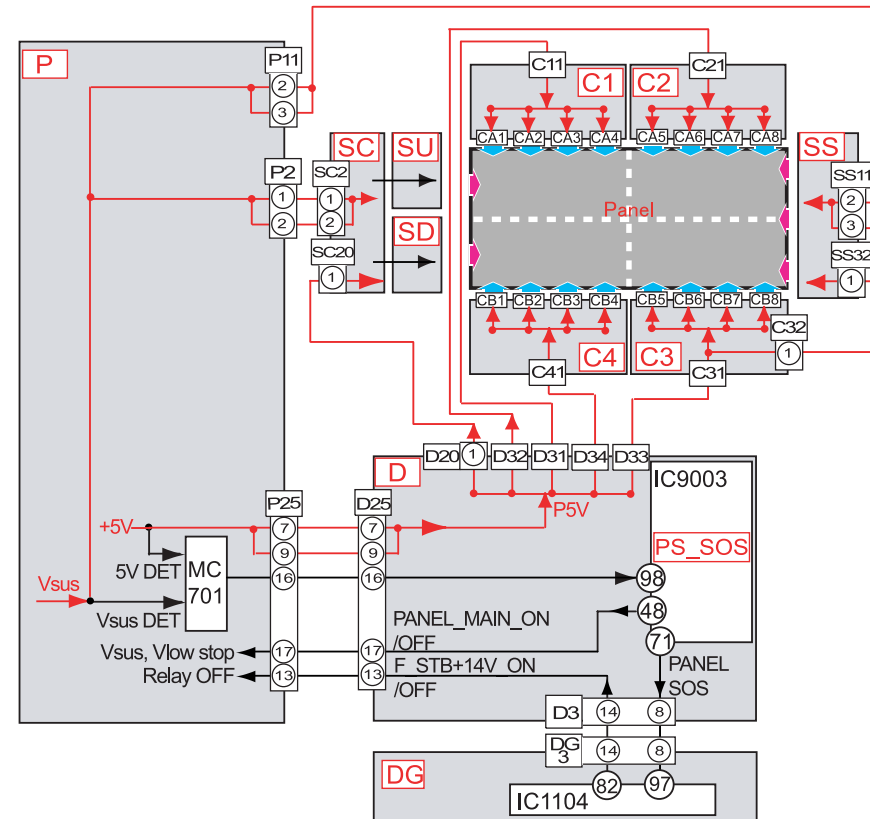
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
Power SOS =V _{sus} , 5V down	P, SC, SS, D, SC, SU Board (P > SC, SS, D, SU, SD)

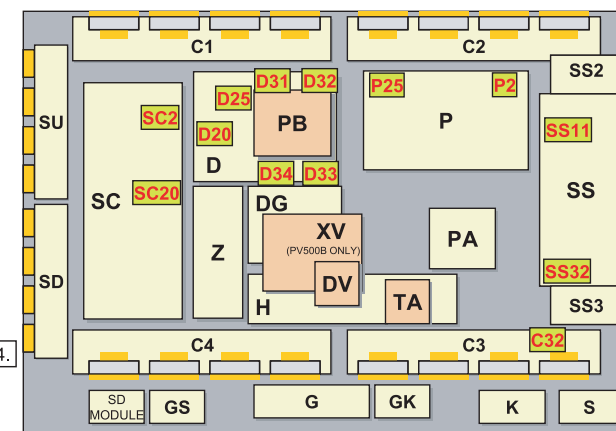
◆ How to find the defective board



◆ **Power Supply and Protection Circuit** e.g. 42PV500E,B



◆ **Check Point Location** e.g. 42PV500E,B



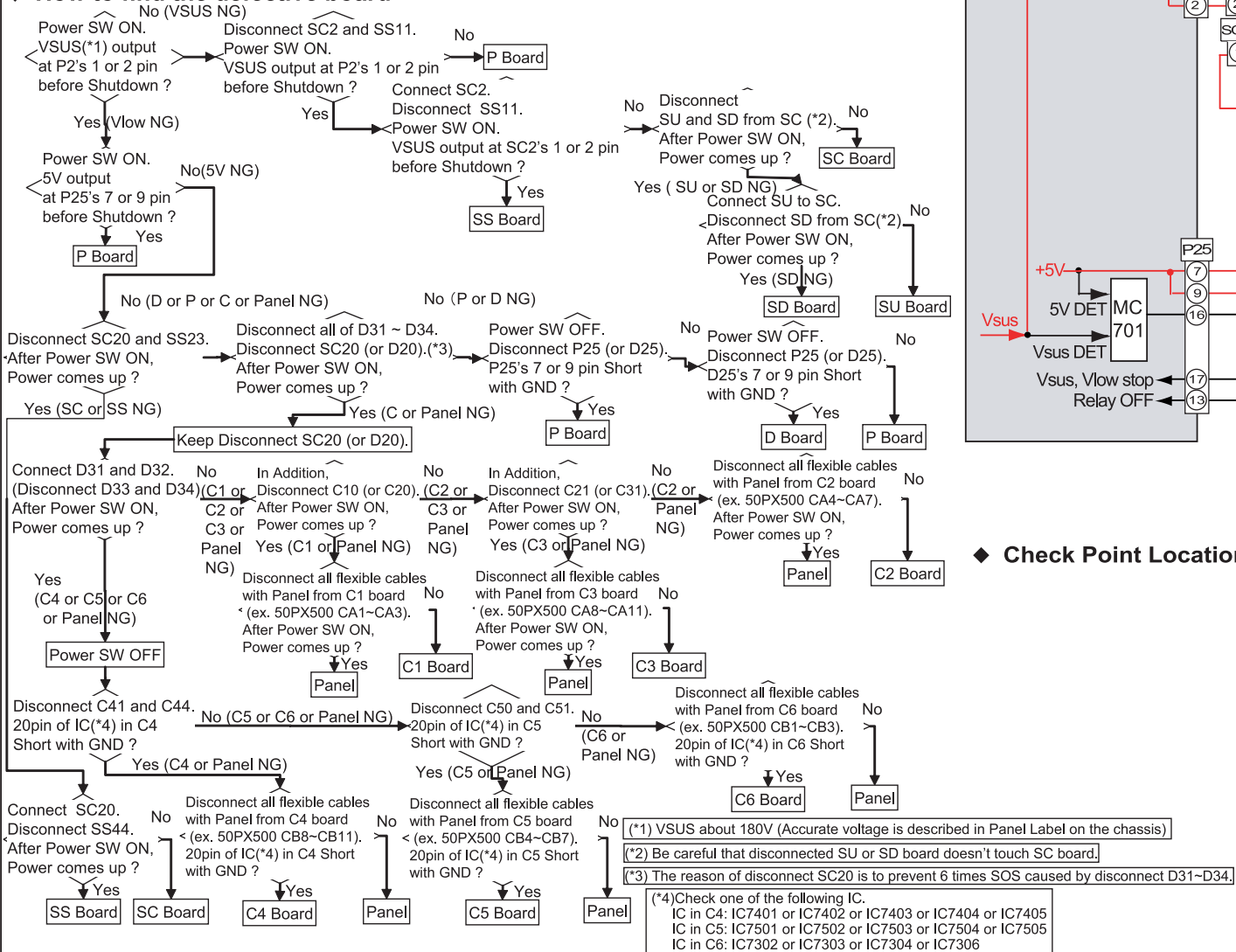
Trouble Shooting Power LED Blink Trouble

LED 4 times blink < 50" HD (TH-50PV500E,B) >

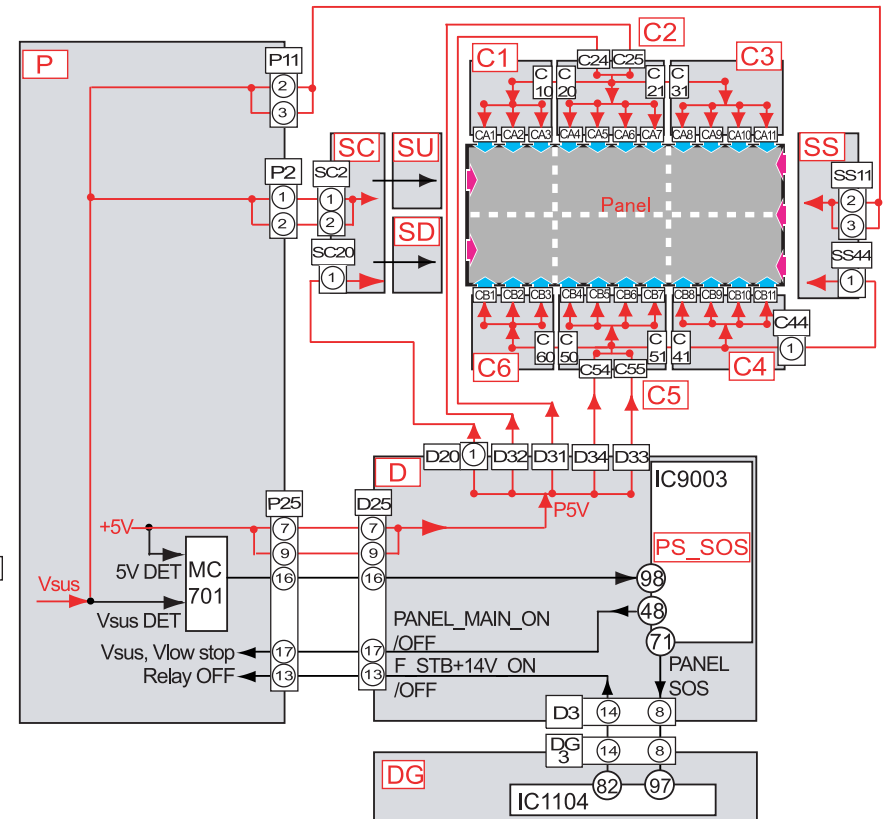
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
Power SOS =Vsus, 5V down	P, SC, SS, D, SC, SU Board (P > SC, SS, D, SU, SD)

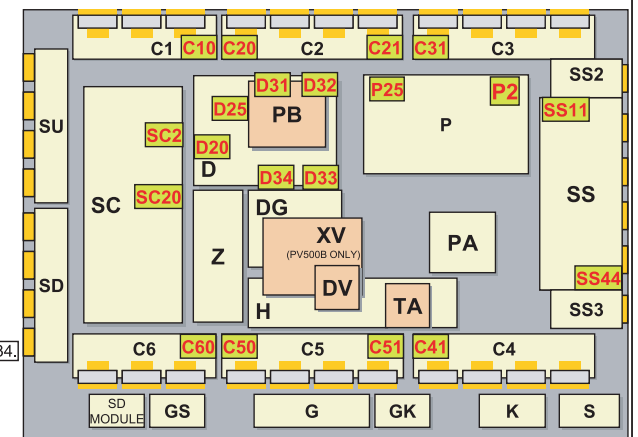
◆ How to find the defective board



◆ Power Supply and Protection Circuit



◆ Check Point Location



LED 5 times blink < 37",42" SD (TH-37/42PA50E,PE50B) >

Trouble Mode	Defective Board
P5V SOS	D, P, C, SC, SS Board, Panel (IC)

The flowchart is organized into three main columns based on the initial test results:

- Column 1: No (D or P or C or Panel NG)**
 - Step 1: Disconnect SC20 and SS23. After Power SW ON, Power comes up?
 - Yes (SC or SS NG) → C2 Board
 - No → Step 2
 - Step 2: Disconnect D33 and D34. After Power SW ON, Power comes up?
 - Yes (C or Panel NG) → C2 Board
 - No (C1 or Panel NG) → Step 3
 - Step 3: Power SW OFF. Disconnect all flexible cables (CB4~CB7 from C2 board). 20pin of IC(*2) in C2 Short with GND?
 - Yes → C2 Board
 - No → Panel
 - Step 4: Connect SC20. Disconnect SS23. After Power SW ON, Power comes up?
 - Yes → SS Board
 - No → SC Board
- Column 2: No (P or D NG)**
 - Step 1: Power SW OFF. Disconnect P25 (or D25). P25's 7 or 9 pin Short with GND?
 - Yes → P Board
 - No → Step 2
 - Step 2: Power SW OFF. Disconnect P25 (or D25). D25's 7 or 9 pin Short with GND?
 - Yes → D Board
 - No → P Board
- Column 3: No (C1 or Panel NG)**
 - Step 1: Power SW OFF. Disconnect all flexible cables (CB1~CB3 from C1 board). 20pin of IC(*2) in C1 Short with GND?
 - Yes → C1 Board
 - No → Panel

(*1) The reason of disconnect SC20 is to prevent 6 times SOS caused by disconnect D33 and D34.

(*1) The reason of disconnect SC20 is to prevent 6 times SOS caused by disconnect D33 and D34.

(*2)Check one of the following IC.
IC in C1 board : IC7101 or IC7104 or IC7105 or IC7106
IC in C2 board : IC7201 or IC7202 or IC7203 or IC7204

The floor plan shows a large rectangular building with a central corridor (SU and SD) and several rooms. The rooms are labeled as follows: SC (large room on the left), PB (top center), P (top right), SS (far right), SC20 (small room near SC), D20 (small room near SC), D (small room near SC), D34 (small room near PB), D33 (small room near PB), XV (large room near PB), DG (small room near XV), Z (small room near XV), PA (small room near XV), TA (small room near XV), H (small room near XV), C1 (small room near XV), C2 (small room near XV), K (small room near C1), and S (small room near C2). The rooms are colored in shades of yellow and orange, with some rooms having a red border. The corridor is colored in shades of blue and green. The rooms are arranged in a grid-like pattern, with the corridor running vertically through the center. The rooms are labeled with their names and some have additional information in parentheses, such as 'XV (PE50B ONLY)'.

LED 5 times blink < 37", 42" HD (37/42PV500E,B)>

Trouble Mode	Defective Board
P5V SOS	D, P, C, SC, SS Board, Panel (IC)

The flowchart provides a systematic approach to diagnosing power issues. It begins with a decision point: 'No (D or P or C or Panel NG)' or 'No (P or D NG)'. If the first condition is met, the user is instructed to 'Disconnect SC20 and SS32.' and then 'After Power SW ON, Power comes up?'. If 'Yes (SC or SS NG)', the user should 'Keep Disconnect SC20 (or D20).'. If 'Yes (C or Panel NG)', the user should 'Connect D31 and D32. (Disconnect D33 and D34)' and then 'After Power SW ON, Power comes up?'. If 'Yes (C3 or C4 or Panel NG)', the user should 'In addition, Connect D34 (Disconnect only D33.)' and then 'After Power SW ON, Power comes up?'. If 'Yes (C3 or Panel NG)', the user should 'Connect SC20. Disconnect SS32.' and then 'After Power SW ON, Power comes up?'. If 'Yes', the user should identify the 'SS Board' or 'SC Board'. If 'No', the user should 'Power SW OFF. Disconnect all flexible cables with Panel from C3 board (ex. 42PX500 CB5~CB8). 20pin of IC(*2) in C3 Short with GND?'. If 'Yes', the user should identify the 'C3 Board'. If 'No', the user should identify the 'Panel'. If the first condition is not met, the user should 'Disconnect all of D31~D34. Disconnect SC20 (or D20). After Power SW ON, Power comes up? (*1)'. If 'Yes', the user should 'Power SW OFF. Disconnect P25 (or D25). P25's 7 or 9 pin Short with GND?'. If 'Yes', the user should identify the 'P Board'. If 'No', the user should 'Power SW OFF. Disconnect P25 (or D25). D25's 7 or 9 pin Short with GND?'. If 'Yes', the user should identify the 'D Board'. If 'No', the user should identify the 'P Board'. If the second condition is met, the user should 'In addition, Disconnect D32. (Connect only D31.) After Power SW ON, Power comes up?'. If 'Yes (C2 or Panel NG)', the user should 'In addition, Disconnect all flexible cables with Panel from C2 board (ex. 42PX500 CA5~CA8). After Power SW ON, Power comes up?'. If 'Yes', the user should identify the 'Panel'. If 'No', the user should identify the 'C2 Board'. If 'No (C1 or Panel NG)', the user should 'In addition, Disconnect all flexible cables with Panel from C1 board (ex. 42PX500 CA1~CA4). After Power SW ON, Power comes up?'. If 'Yes', the user should identify the 'Panel'. If 'No', the user should identify the 'C1 Board'. If 'No (C1 or Panel NG)', the user should 'In addition, Disconnect all flexible cables with Panel from C4 board (ex. 42PX500 CB1~CB4). 20pin of IC(*2) in C4 Short with GND?'. If 'Yes', the user should identify the 'C4 Board'. If 'No', the user should identify the 'Panel'.

(*2) Check one of the following IC.
IC in C3 board : IC7301 or IC7302 or IC7303 or IC7304
IC in C4 board : IC7401 or IC7402 or IC7403 or IC7404

The floor plan of the PVS5000B test cell is divided into several functional zones. On the left, there are vertical storage units labeled 'SU' and 'SD'. The central area contains a large 'SC' (Storage Cabinet) with 'SC20' highlighted in yellow. To its right is a 'D' (Drawer) with 'D20' highlighted. Further right is a 'PB' (Power Block) with 'D25', 'D31', 'D32', 'D34', and 'D33' highlighted. Below 'PB' is a 'DG' (Distribution Grid) with 'XV' (Valve) and 'DV' (Drain Valve) highlighted. 'XV' is labeled '(PVS500B ONLY)'. To the right of 'DG' is a 'Z' (Zone) and an 'H' (Heater). Further right is a 'PA' (Pump Assembly) and a 'TA' (Temperature Actuator). The top right corner features a 'P' (Pump) with 'P25' highlighted. The right side of the plan includes storage areas 'SS', 'SS2', and 'SS3', with 'SS32' highlighted in yellow. The bottom of the plan shows a row of modules: 'SD MODULE', 'GS', 'G', 'GK', 'K', and 'S'. Above these modules are control areas 'C1', 'C2', 'C3', and 'C4'. The entire layout is enclosed in a yellow border with yellow rectangular markers at the top and bottom edges.

LED 5 times blink < 50" HD (TH-50PV500E,B) >

Trouble Mode	Defective Board
P5V SOS	D, P, C, SC, SS Board, Panel (IC)

Flowchart for Troubleshooting Power SW ON, Power comes up?

```

graph TD
    Start([No (D or P or C or Panel NG)  
No (P or D NG)]) --> Step1{Disconnect SC20 and SS44  
After Power SW ON,  
Power comes up?}
    Step1 -- Yes (SC or SS NG) --> Step2{Connect D31 and D32.  
(Disconnect D33 and D34)  
After Power SW ON,  
Power comes up?}
    Step1 -- No --> Step1a{Disconnect all of D31~D34.  
Disconnect SC20 (or D20).  
After Power SW ON,  
Power comes up? (*1)}
    Step1a -- Yes (C or Panel NG) --> Step2
    Step1a -- No --> Step1b{Power SW OFF.  
Disconnect P25 (or D25).  
P25's 7 or 9 pin Short  
with GND?}
    Step1b -- Yes --> PBoard1[P Board]
    Step1b -- No --> Step1c{Power SW OFF.  
Disconnect P25 (or D25).  
D25's 7 or 9 pin Short  
with GND?}
    Step1c -- Yes --> DBoard[D Board]
    Step1c -- No --> PBoard2[P Board]
    
    Step2 -- Yes (C4 or C5 or C6  
or Panel NG) --> PSWOff1[Power SW OFF]
    Step2 -- No --> Step2a{C1 or  
C2 or  
C3 or  
Panel NG}
    Step2a -- Yes (C1 or Panel NG) --> Step2b{Disconnect all flexible cables  
with Panel from C1 board  
(ex. 50PX500 CA1~CA3).  
After Power SW ON,  
Power comes up?}
    Step2a -- No --> Step2c{C2 or  
C3 or  
Panel NG}
    Step2c -- Yes (C3 or Panel NG) --> Step2d{Disconnect all flexible cables  
with Panel from C3 board  
(ex. 50PX500 CA8~CA11).  
After Power SW ON,  
Power comes up?}
    Step2c -- No --> Step2e{C2 or  
C3 or  
Panel NG}
    Step2e -- Yes --> C2Board[C2 Board]
    Step2e -- No --> Step2f{Disconnect all flexible cables  
with Panel from C2 board  
(ex. 50PX500 CA4~CA7).  
After Power SW ON,  
Power comes up?}
    Step2f -- Yes --> Panel1[Panel]
    Step2f -- No --> C2Board
    
    PSWOff1 --> Step3{Disconnect C41 and C44.  
20pin of IC(*2) in C4  
Short with GND?}
    Step3 -- Yes (C4 or Panel NG) --> Step4{Connect SC20  
and Disconnect SS44.  
After Power SW ON,  
Power comes up?}
    Step3 -- No --> Step3a{No (C5 or C6 or Panel NG)}
    Step3a --> Step3b{Disconnect C50 and C51.  
20pin of IC(*2) in C5  
Short with GND?}
    Step3b -- Yes (C5 or Panel NG) --> Step3c{Disconnect all flexible cables  
with Panel from C4 board  
(ex. 50PX500 CB8~CB11).  
20pin of IC(*2) in C4 Short  
with GND?}
    Step3b -- No --> Step3d{Disconnect all flexible cables  
with Panel from C5 board  
(ex. 50PX500 CB4~CB7).  
20pin of IC(*2) in C5 Short  
with GND?}
    Step3c -- Yes --> C4Board[C4 Board]
    Step3c -- No --> Panel2[Panel]
    Step3d -- Yes --> C5Board[C5 Board]
    Step3d -- No --> Panel3[Panel]
    
    Step4 -- Yes --> SSBoard[SS Board]
    Step4 -- No --> SCBoard[SC Board]
  
```

Flowchart Details:

- Initial Check:** No (D or P or C or Panel NG) / No (P or D NG)
 - Step 1:** Disconnect SC20 and SS44. After Power SW ON, Power comes up?
 - Yes (SC or SS NG):** Connect D31 and D32. (Disconnect D33 and D34). After Power SW ON, Power comes up?
 - Yes (C4 or C5 or C6 or Panel NG):** Power SW OFF.
 - No:** C1 or C2 or C3 or Panel NG.
 - Yes (C1 or Panel NG):** Disconnect all flexible cables with Panel from C1 board (ex. 50PX500 CA1~CA3). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C1 Board
 - No:** C2 or C3 or Panel NG.
 - Yes (C3 or Panel NG):** Disconnect all flexible cables with Panel from C3 board (ex. 50PX500 CA8~CA11). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C3 Board
 - No:** C2 or C3 or Panel NG.
 - Yes:** Disconnect all flexible cables with Panel from C2 board (ex. 50PX500 CA4~CA7). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C2 Board
 - No:** C2 Board
 - Yes (C or Panel NG):** Keep Disconnect SC20 (or D20). Connect D31 and D32. (Disconnect D33 and D34). After Power SW ON, Power comes up?
 - Yes (C4 or C5 or C6 or Panel NG):** Power SW OFF.
 - No:** C1 or C2 or C3 or Panel NG.
 - Yes (C1 or Panel NG):** Disconnect all flexible cables with Panel from C1 board (ex. 50PX500 CA1~CA3). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C1 Board
 - No:** C2 or C3 or Panel NG.
 - Yes (C3 or Panel NG):** Disconnect all flexible cables with Panel from C3 board (ex. 50PX500 CA8~CA11). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C3 Board
 - No:** C2 or C3 or Panel NG.
 - Yes:** Disconnect all flexible cables with Panel from C2 board (ex. 50PX500 CA4~CA7). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C2 Board
 - No:** C2 Board
 - Yes (C or Panel NG):** Keep Disconnect SC20 (or D20). Connect D31 and D32. (Disconnect D33 and D34). After Power SW ON, Power comes up?
 - Yes (C4 or C5 or C6 or Panel NG):** Power SW OFF.
 - No:** C1 or C2 or C3 or Panel NG.
 - Yes (C1 or Panel NG):** Disconnect all flexible cables with Panel from C1 board (ex. 50PX500 CA1~CA3). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C1 Board
 - No:** C2 or C3 or Panel NG.
 - Yes (C3 or Panel NG):** Disconnect all flexible cables with Panel from C3 board (ex. 50PX500 CA8~CA11). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C3 Board
 - No:** C2 or C3 or Panel NG.
 - Yes:** Disconnect all flexible cables with Panel from C2 board (ex. 50PX500 CA4~CA7). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C2 Board
 - No:** C2 Board
 - Yes (C or Panel NG):** Keep Disconnect SC20 (or D20). Connect D31 and D32. (Disconnect D33 and D34). After Power SW ON, Power comes up?
 - Yes (C4 or C5 or C6 or Panel NG):** Power SW OFF.
 - No:** C1 or C2 or C3 or Panel NG.
 - Yes (C1 or Panel NG):** Disconnect all flexible cables with Panel from C1 board (ex. 50PX500 CA1~CA3). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C1 Board
 - No:** C2 or C3 or Panel NG.
 - Yes (C3 or Panel NG):** Disconnect all flexible cables with Panel from C3 board (ex. 50PX500 CA8~CA11). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C3 Board
 - No:** C2 or C3 or Panel NG.
 - Yes:** Disconnect all flexible cables with Panel from C2 board (ex. 50PX500 CA4~CA7). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C2 Board
 - No:** C2 Board
 - Yes (C or Panel NG):** Keep Disconnect SC20 (or D20). Connect D31 and D32. (Disconnect D33 and D34). After Power SW ON, Power comes up?
 - Yes (C4 or C5 or C6 or Panel NG):** Power SW OFF.
 - No:** C1 or C2 or C3 or Panel NG.
 - Yes (C1 or Panel NG):** Disconnect all flexible cables with Panel from C1 board (ex. 50PX500 CA1~CA3). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C1 Board
 - No:** C2 or C3 or Panel NG.
 - Yes (C3 or Panel NG):** Disconnect all flexible cables with Panel from C3 board (ex. 50PX500 CA8~CA11). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C3 Board
 - No:** C2 or C3 or Panel NG.
 - Yes:** Disconnect all flexible cables with Panel from C2 board (ex. 50PX500 CA4~CA7). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C2 Board
 - No:** C2 Board

- Yes (C or Panel NG):** Keep Disconnect SC20 (or D20). Connect D31 and D32. (Disconnect D33 and D34). After Power SW ON, Power comes up?
- Yes (C4 or C5 or C6 or Panel NG):** Power SW OFF.
- No:** C1 or C2 or C3 or Panel NG.
 - Yes (C1 or Panel NG):** Disconnect all flexible cables with Panel from C1 board (ex. 50PX500 CA1~CA3). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C1 Board
 - No:** C2 or C3 or Panel NG.
 - Yes (C3 or Panel NG):** Disconnect all flexible cables with Panel from C3 board (ex. 50PX500 CA8~CA11). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C3 Board
 - No:** C2 or C3 or Panel NG.
 - Yes:** Disconnect all flexible cables with Panel from C2 board (ex. 50PX500 CA4~CA7). After Power SW ON, Power comes up?
 - Yes:** Panel
 - No:** C2 Board
 - No:** C2 Board
- Yes (C or**

(*2)Check one of the following IC.
 IC in C4 board : IC7401 or IC7402 or IC7403 or IC7404 or IC7405
 IC in C5 board : IC7501 or IC7502 or IC7503 or IC7504 or IC7505
 IC in C6 board : IC7302 or IC7303 or IC7304 or IC7306

[illegible]

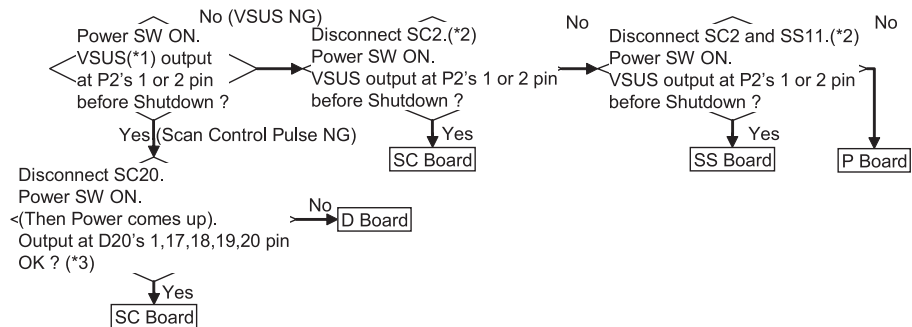
Trouble Shooting Power LED Blink Trouble

LED 6 times blink <37"/42"> (TH-37/42PA50E, PE50B)
(TH-37/42PV500E,B)

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
SC Energy Recovery SOS	SC, SS, D, P Board (SC > SS, D, P)

◆ How to find the defective board

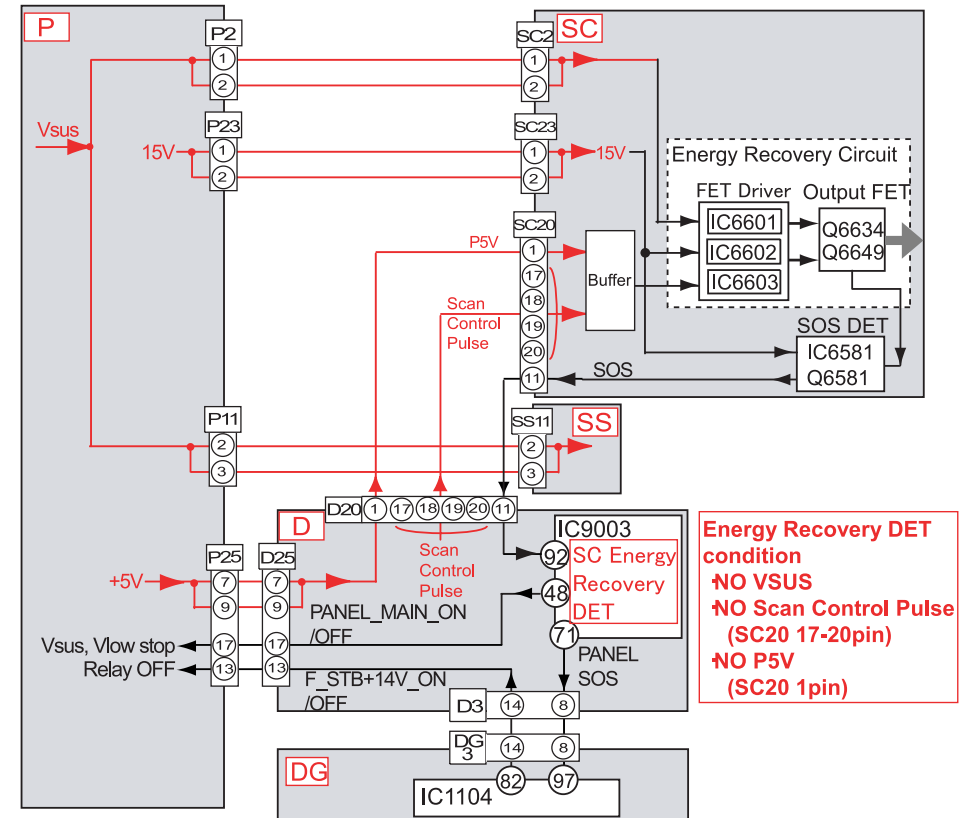


(*1) VSUS about 180V (Accurate voltage is described in Panel Label on the chassis)

(*2) CAUTION
Before connecting SC2 or SS11 after these are disconnected,
discharge is necessary to prevent potential shock caused by VSUS.

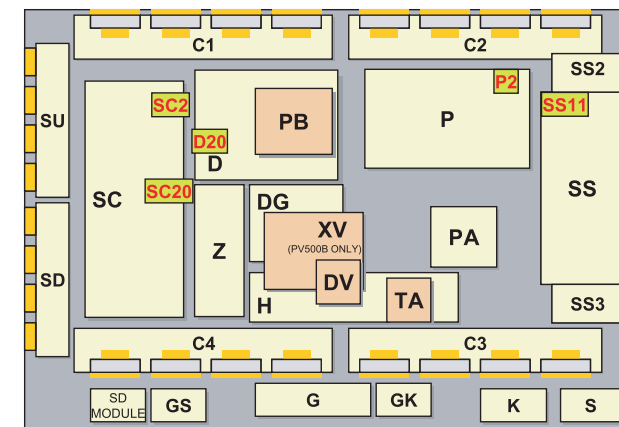
(*3) Check
Pin No. : Output
1 : 5V(DC)
17, 18, 19, 20 : 5V(PULSE) ---need oscilloscope

◆ Power Supply and Protection Circuit e.g. 42PV500E,B



Energy Recovery DET condition
NO VSUS
NO Scan Control Pulse (SC20 17-20pin)
NO P5V (SC20 1pin)

◆ Check Point Location e.g. 42PV500E,B



LED 6 times blink < 50" (TH-50PV500E,B) >

Trouble Mode	Defective Board (Possibility)
SC Floating Voltage	SC, SS, D, P Board
SC Energy Recovery	SC, SU, SD, D, P Board

```

graph TD
    Start([Start]) --> Q1{Power SW ON.  
VSUS(*1) output  
at P2's(or SC2's) 1 or 2 pin  
before Shutdown ?}
    Q1 -- Yes --> SC_Board1[SC Board]
    Q1 -- No --> Q2{Disconnect SC2.( *2)  
Power SW ON.  
VSUS output at P2's 1 or 2 pin  
before Shutdown ?}
    Q2 -- Yes --> SC_Board2[SC Board]
    Q2 -- No --> Q3{Disconnect SC2 and SS11.( *2)  
Power SW ON.  
VSUS output at P2's 1 or 2 pin  
before Shutdown ?}
    Q3 -- Yes --> SS_Board[SS Board]
    Q3 -- No --> P_Board1[P Board]
    P_Board1 --> Q4{Disconnect SU and SD from SC (*3).  
After Power SW ON,  
Power comes up ?}
    Q4 -- Yes (SU or SD NG) --> Q5{Connect SU to SC.  
Disconnect SD from SC(*3).  
After Power SW ON,  
Power comes up ?}
    Q5 -- No --> SU_Board[SU Board]
    Q5 -- Yes (SD NG) --> Q6{Connect SD to SC.  
Disconnect SU from SC(*3).  
After Power SW ON,  
Power comes up ?}
    Q6 -- No --> SD_Board[SD Board]
    Q6 -- Yes (SC Control Pulse NG) --> Q7{Connect SU and SD to SC.  
Disconnect SC20.  
After Power SW ON,  
Then Power comes up)  
Output at D20's 1,17,18,19,20 pin  
OK ? (*6)}
    Q7 -- Yes --> SC_Board3[SC Board]
    Q7 -- No --> D_Board[D Board]
    Q4 -- No --> Q8{Disconnect SC20.  
After Power SW ON,  
Then Power comes up)  
Output at D20's 1,17,18,19,20 pin  
OK ? (*6)}
    Q8 -- Yes --> SC_Board4[SC Board]
    Q8 -- No --> D_Board
    Q4 -- Yes (VSCN or VAD of SC Control Pulse NG) --> Q9{Power SW ON.  
DC15V output  
at TP15V on SC  
before Shutdown ?}
    Q9 -- No --> Q10{Power SW ON.  
DC15V output at P23's 1 or 2 pin  
before Shutdown ?}
    Q10 -- Yes --> SC_Board5[SC Board]
    Q10 -- No --> P_Board2[P Board]
    Q9 -- Yes (SC Control Pulse NG) --> Q11{Power SW ON.  
Output at TPVSCN on SC and  
Output at TPVAD on SC OK  
before Shutdown ? (*4)}
    Q11 -- No --> SC_Board6[SC Board]
    Q11 -- Yes --> Q12{Disconnect SC20.  
(Then Power comes up)  
Output at D20's 1,4,6 pin OK ? (*5)}
    Q12 -- Yes --> SC_Board7[SC Board]
    Q12 -- No --> D_Board
  
```

<p>(*4)Check Test Point. :Output TPVSCN :about 30~40V TPVAD :about Δ90V</p>	<p>(*5)Check Pin No. :Output 1 :5V(DC) 4,6 :5V(PULSE) ---need oscilloscope</p>	<p>(*6)Check Pin No. :Output 1 :5V(DC) 17, 18, 19, 20 :5V(PULSE)---need oscilloscope</p>
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[illegible]

Floating Voltage DET condition

- NO 15V
- NO Scan Control Pulse (SC20 4-6pin)
- NO P5V (SC20 1pin)

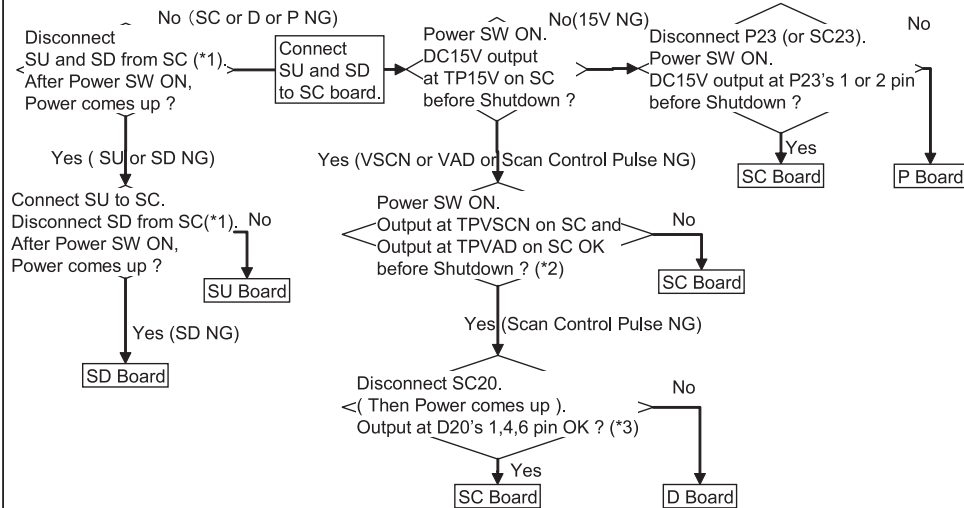
Trouble Shooting Power LED Blink Trouble

LED 7 times blink <37"/42"> (TH-37/42PA500E, PE50B)
(TH-37/42PV500E,B)

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
SC floating voltage SOS	SC, SU, SD, D, P Board (SC, SU, SD > D, P)

◆ How to find the defective board



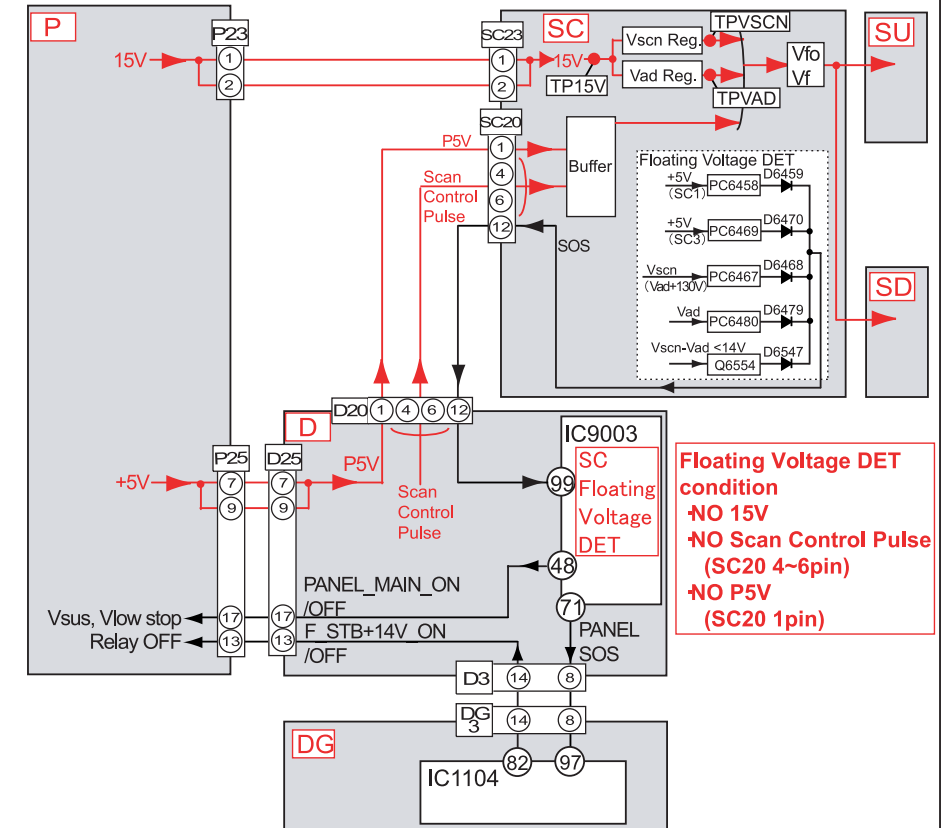
(*1) Be careful that disconnected SU or SD board doesn't touch SC board.

(*2) Check
Test Point. : Output
TPVSCN : about 30~40V
TPVAD : about Δ90V

(*3) Check
Pin No. : Output
1 : 5V(DC)
4, 6 : 5V(PULSE)---need oscilloscope

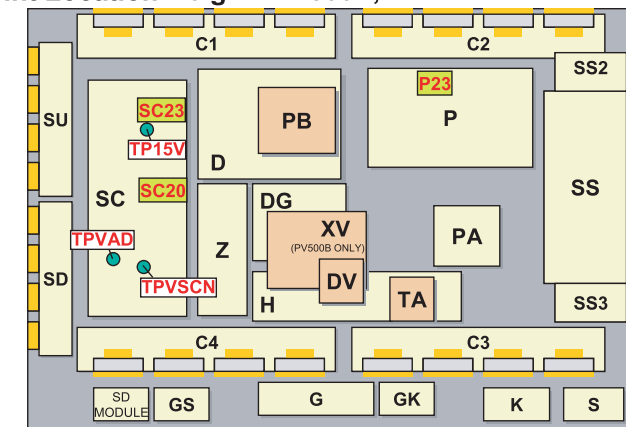
◆ Power Supply and Protection Circuit

e.g. 42PV500E,B



◆ Check Point Location

e.g. 42PV500E,B



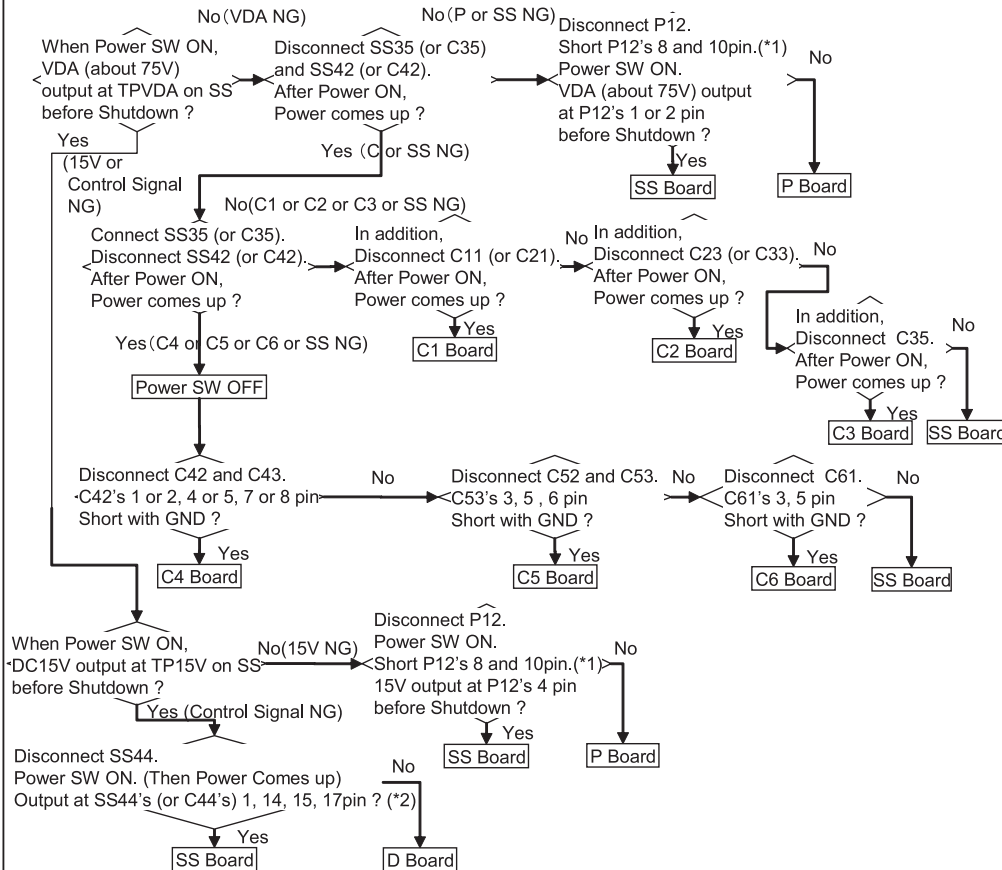
Trouble Shooting Power LED Blink Trouble

LED 7 times blink < 50" (TH-50PV500E,B) >

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board
SS Data Energy recovery	SS, D, C, P

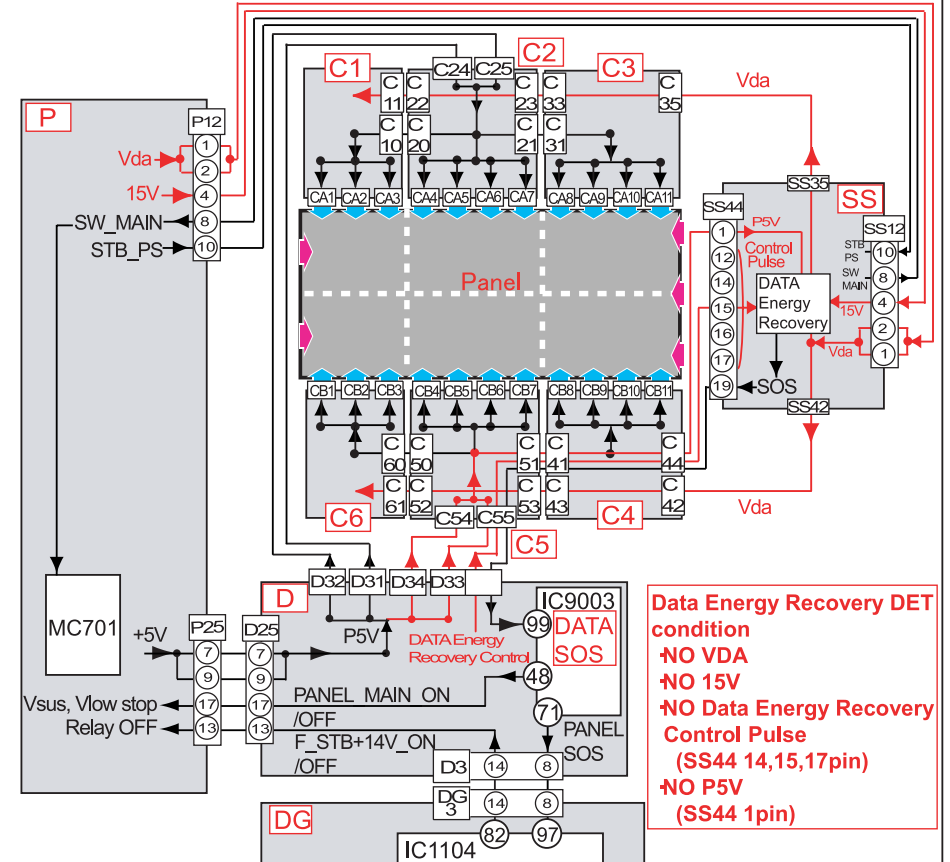
◆ How to find the defective board



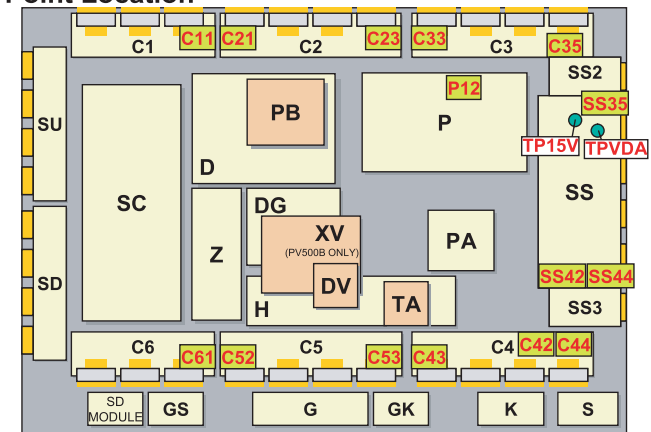
(*1) The reason of short is that SW_MAIN signal is low (STB_PS) and MC701 outputs Relay ON signal for power supply.

(*2) Check
Pin NO : Output
1 : 5V(DC)
14, 15, 17: 5V(PULSE)---need oscilloscope

◆ Power Supply and Protection Circuit



◆ Check Point Location



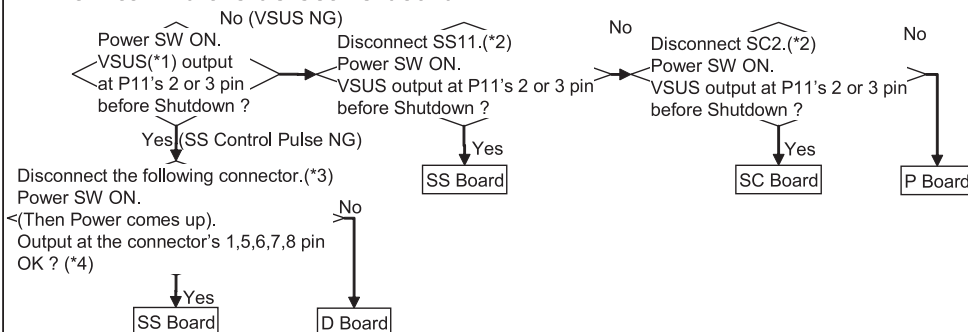
Trouble Shooting Power LED Blink Trouble

LED 8 times blink

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
SS Energy recovery	SS, SC, D, P Board (SS > SC, D, P)

◆ How to find the defective board



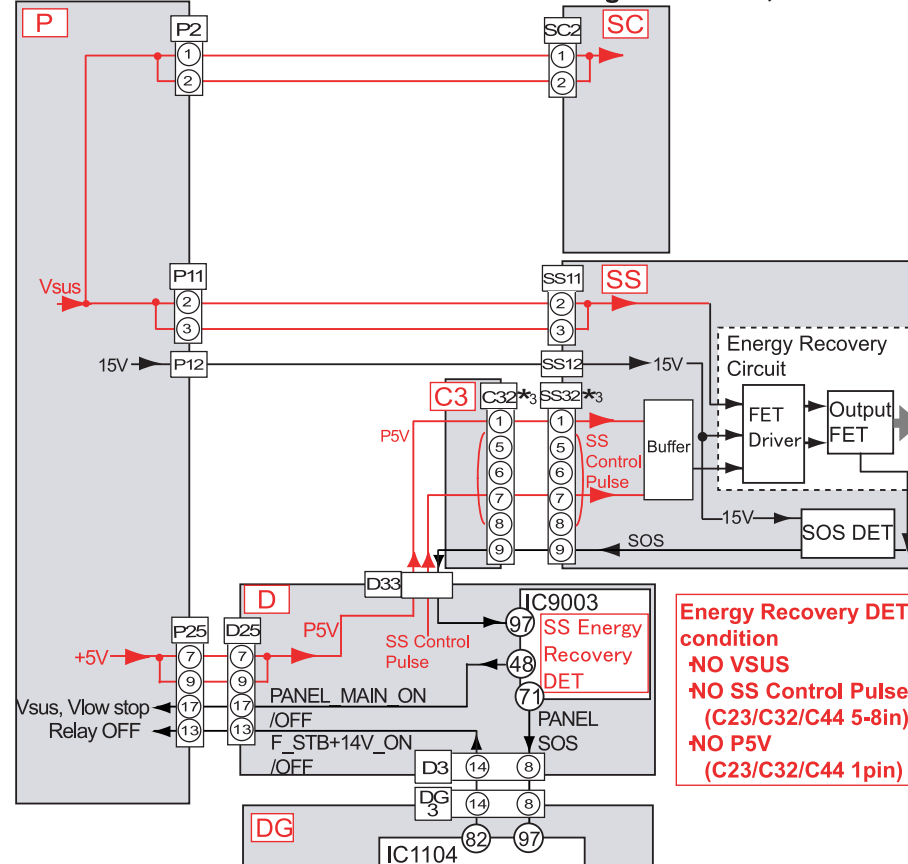
(*1) VSUS about 180V (Accurate voltage is described in Panel Label on the chassis)

(*2) CAUTION
Before connecting SC2 or SS11 after these are disconnected,
discharge is necessary to prevent potential shock caused by VSUS.

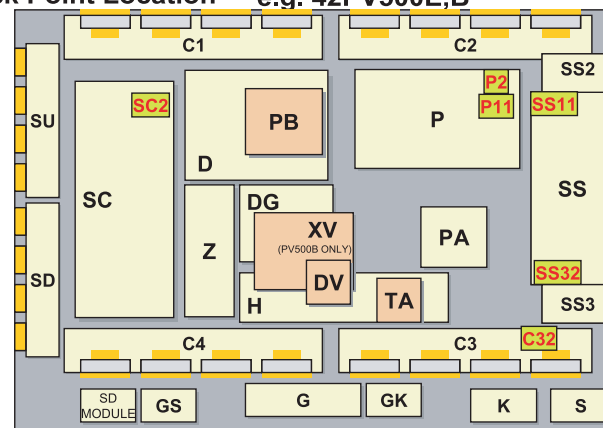
(*3) Connector
Model : Connector
37/42PA50E, PE50B(SD) : SS23-C23
37/42PV500E,B(HD37,42) : SS32-C32
50PV500E,B(HD50) : SS44-C44

(*4) Output
Pin No. : Output
1 : 5V(DC)
5, 6, 7, 8 : 5V(PULSE)---need oscilloscope

◆ Power Supply and Protection Circuit e.g. 42PV500E,B



◆ Check Point Location e.g. 42PV500E,B



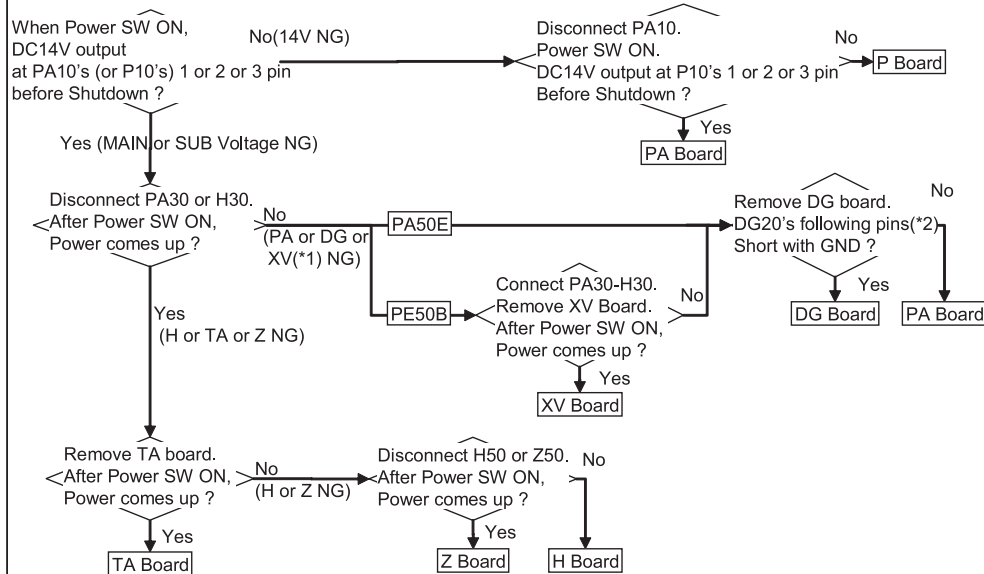
Trouble Shooting Power LED Blink Trouble

LED 10 times blink <50 series (TH-37/42PA50E, PE50B)>

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
Tuner Power SOS	PA, P, other Boards (PA, P > other Boards)

◆ How to find the defective board

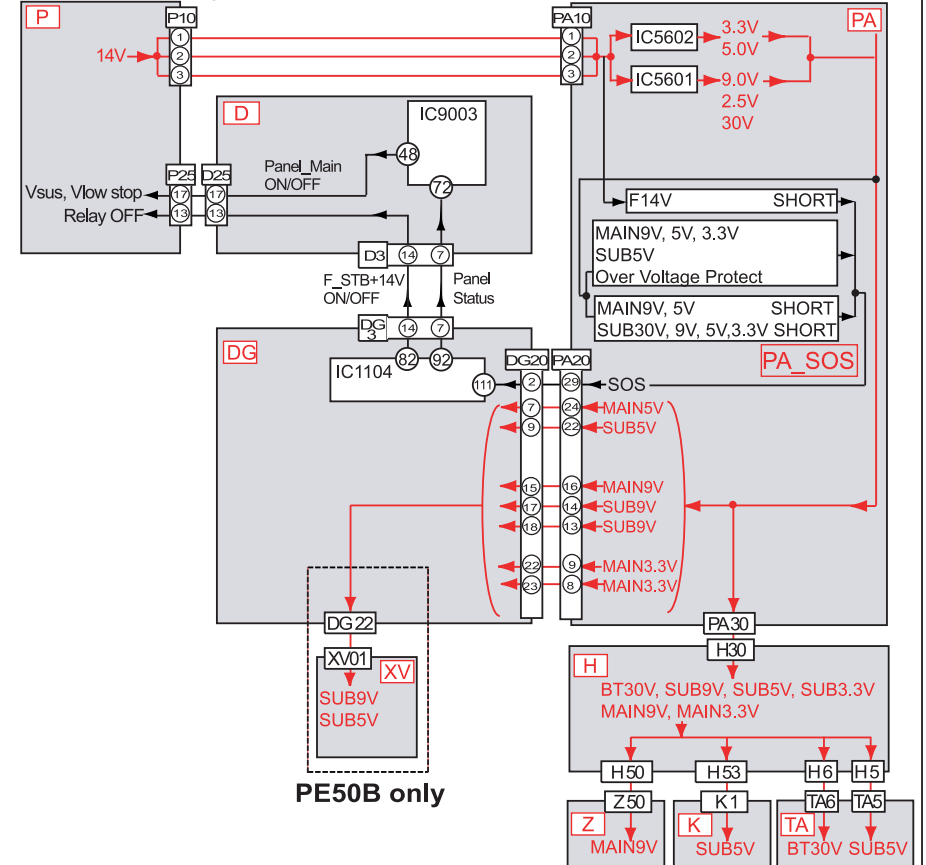


(*1) XV board : PE50B only

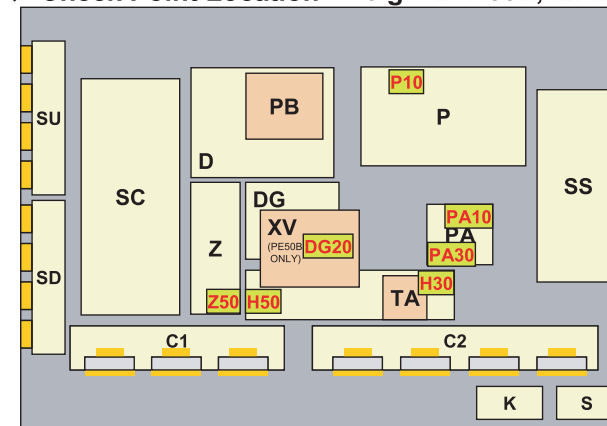
(*2) Check DG20's Pin Number

Pin No.	Voltage (Normal Condition)
7	MAIN5V
9	SUB5V
15	MAIN9V
17	SUB9V
18	SUB9V
22	MAIN3.3V
23	MAIN3.3V

◆ Power Supply and Protection Circuit



◆ Check Point Location e.g. 42PA50E, 42PE50B



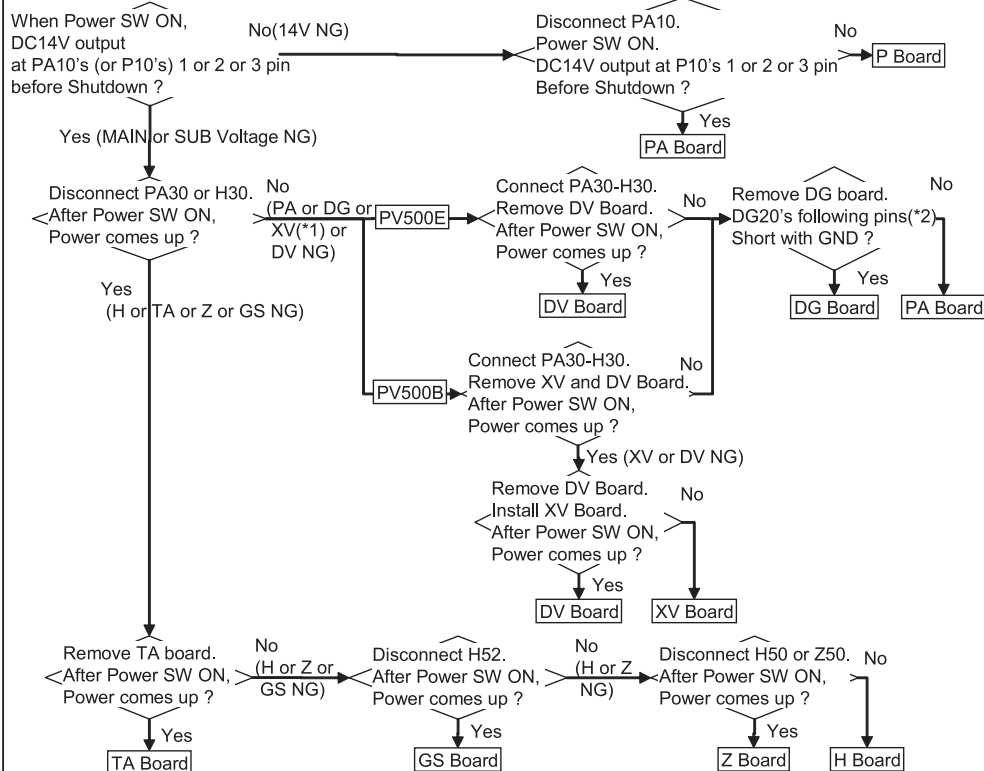
Trouble Shooting Power LED Blink Trouble

LED 10 times blink < 500 series (TH-37/42/50PV500E,B) >

◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board (Possibility)
Tuner Power SOS	PA, P, other Boards (PA, P > other Boards)

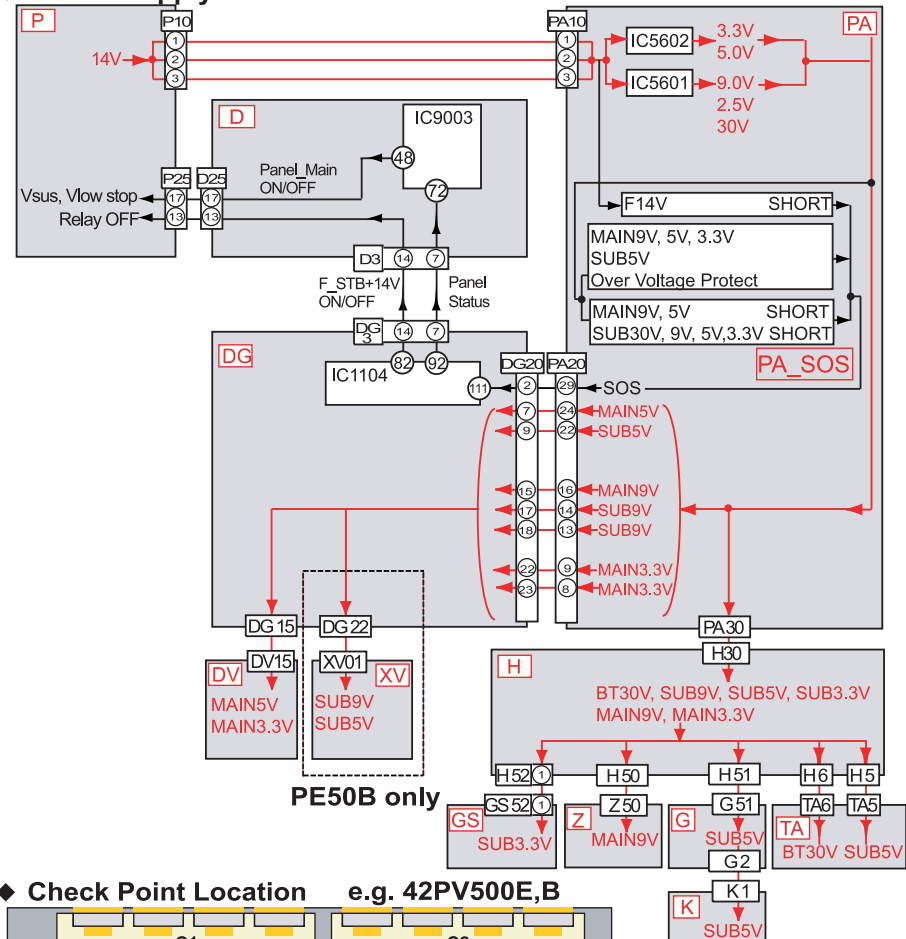
◆ How to find the defective board



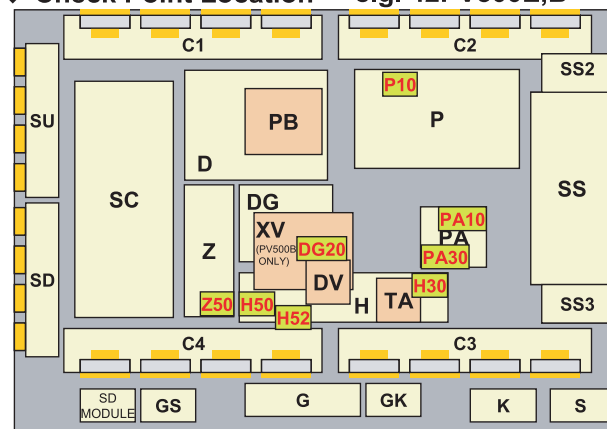
(*1) XV board : PE500V only

(*2) Check DG20's Pin Number
 Pin No. Voltage (Normal Condition)
 7 MAIN5V
 9 SUB5V
 15 MAIN9V
 17 SUB9V
 18 SUB9V
 22 MAIN3.3V
 23 MAIN3.3V

◆ Power Supply and Protection Circuit



◆ Check Point Location e.g. 42PV500E,B



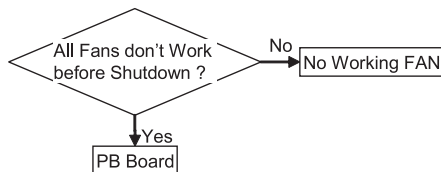
Trouble Shooting Power LED Blink Trouble

LED 11 times blink

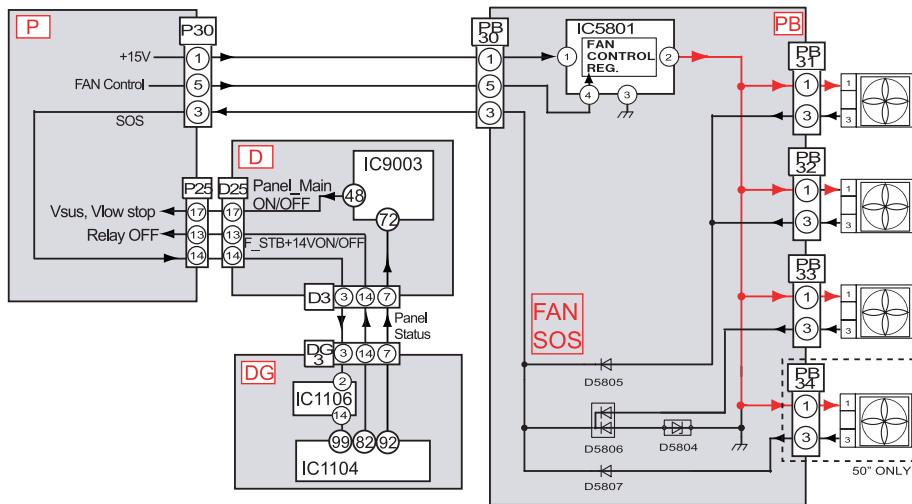
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board
Fan SOS	PB Board, FAN

◆ How to find the defective board



◆ Power Supply and Protection Circuit

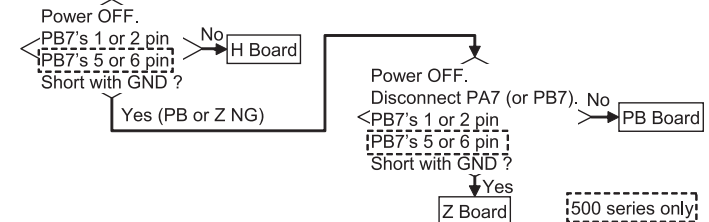


LED 12 times blink

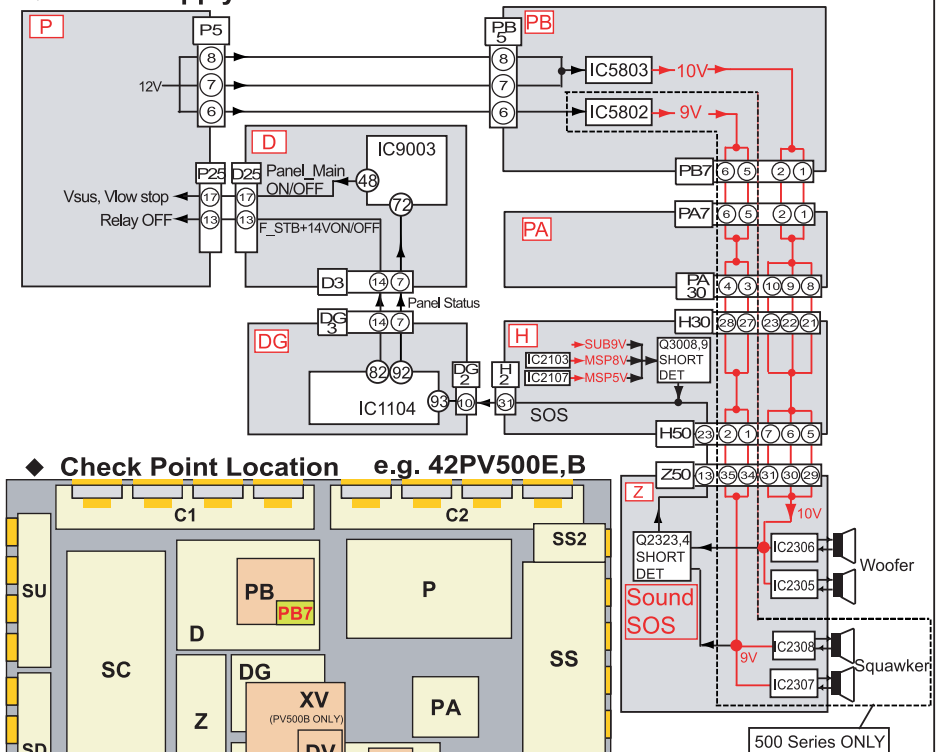
◆ Trouble Mode and Defective Board

Trouble Mode	Defective Board
Sound SOS	Z, PB, H Board

◆ How to find the defective board



◆ Power Supply and Protection Circuit



◆ Check Point Location e.g. 42PV500E,B

